

CA-IR-460

Ref: HECO Response to CA-IR-38, parts (e) and (f), Environmental Site Assessments.

Regarding the newly proposed All Appropriate Inquiries regulation that, “if adopted, as proposed is expected to raise consulting costs for conducting these property assessments by roughly 20%,” please respond to the following:

- a. Please describe typical situations when HECO would normally be involved in a process of “conducting environmental site assessments (“ESA”) for property transactions and for defining environmental professionals who are qualified to conduct such assessments.”
- b. State whether the proposed AAI regulations would increase the frequency of required ESAs, or instead would increase the cost (but not the frequency) of such assessments.
- c. Describe whether transaction-related costs such as consulting fees for ESAs are typically capitalized by HECO as an adjustment to plant in service or as a reduction of the otherwise realized gain on sale of land, as opposed to current period expensing of such costs.

HECO Response:

- a. HECO conducts environmental site assessments (ESAs) for property transactions as a matter of due diligence. An ESA is conducted to protect oneself against future environmental liabilities by determining the potential for or existence of past or present site contamination, in advance of any property transaction. An ESA would be conducted prior to the purchase, lease or sale of properties (e.g., substation sites, combined heat and power sites, etc.). Currently, HECO retains the services of outside consultants to conduct these ESAs. These consultants conduct ESAs in conformance with current industry standards (i.e., American Society for Testing and Materials [ASTM]; ASTM E1527-00, etc.). The adoption of the All Appropriate Inquiries (AAI) regulations could result in the need for consultants to use higher level (or more experienced) staff to comply with the definitions of an Environmental Professional. This will result in higher salary costs. The proposed AAI rule also requires additional program components that are not required under current ESA guidelines (e.g.,

consideration of purchase price of property versus value of the property, visual inspections of adjoining properties, identification and documentation of data gaps, etc.)

- b. In general, AAI regulations should not increase the frequency of ESAs, but it will increase the costs of conducting ESAs due to increased requirements. However, because the AAI rule includes a one-year shelf life provision, it is possible that ESAs may have to be redone if the “shelf life” of the ESA runs out before the property transaction can be completed.
- c. Transaction-related costs such as ESA consulting fees are typically capitalized as a part of purchasing a property for a capital project (e.g., new substation site). However, ESAs conducted in the sale of a property is included as a cost of the sale and therefore, is recognized in the property’s net capital gain upon completion of the sale.

CA-IR-461

Ref: HECO March 10, 2005 Adequacy of Supply Report to the Hawaii Public Utilities Commission, page 13; 3.5 HECO Generating Unit Availabilities.

According to the report, "For this AOS, forward looking EFORs for each HECO generating unit were developed by reviewing historical EFORs and when applicable, adjusting these EFORs to account for the expected condition of major generating unit components as a result of recently completed or soon-to-be completed overhaul and refurbishment work." Please respond to the following:

- a. Please provide complete copies of all studies, analyses, reports, projections, workpapers and other documents associated with the development of the referenced "...forward looking EFORs for each HECO generating unit."
- b. Please provide a detailed breakdown of the "forward looking system average EFOR for the 2005-2009 period" of 2.89% by year and unit (owned and IPP).
- c. Identify each instance where it was necessary for HECO to "...adjust[ing] these EFORs to account for the expected condition of major generating unit components."
- d. Explain the basis for each adjustment referenced in part (c) and describe the overhaul work that was completed that contributed to such adjustment.
- e. Identify and describe each program or process initiated by HECO to improve upon the EFOR and availability (EAF) values experienced in 2004.

HECO Response:

- a. Please refer to the table on page 2 of this response for recorded EFOR information. This information, together with the actual work performed on the generating units in recent years, formed the basis for the estimates of EFORs in the test year and future years.

HECO Generating Unit EFOR

HECO Generating Unit	2004 Recorded EFOR	5-Year (2000-2004) Average EFOR	EFOR Forecast 2005-2009
Honolulu 8	23.7%	11.6%	5.7%
Honolulu 9	1.0%	5.7%	5.7%
Waiau 3	24.7%	9.2%	9.2%
Waiau 4	13.4%	7.9%	7.9%
Waiau 5	1.0%	2.3%	2.3%
Waiau 6	0.3%	2.3%	2.3%
Waiau 7	1.2%	1.2%	1.2%
Waiau 8	7.7%	2.9%	2.9%
Waiau 9	63.2%	26.1%	10.0%
Waiau 10	4.4%	14.5%	10.0%
Kahe 1	2.6%	1.6%	2.6%
Kahe 2	2.9%	2.2%	2.9%
Kahe 3	8.8%	3.3%	3.3%
Kahe 4	1.4%	2.6%	2.6%
Kahe 5	7.6%	2.4%	2.4%
Kahe 6	3.2%	1.4%	2.4%
HECO System Composite	6.19%	2.87%	2.89%

Honolulu Units 8 and 9

Honolulu Unit 8 experienced an EFOR of 23.7% in 2004 due to a capacity derating that contributed to a 5-year average EFOR of 11.6%. The limiting factor that caused the derating was the #1 turbine bearing oil drain temperature. A maintenance outage to inspect the #1 bearing could not be scheduled until July, 2004, due to system load demands and limited reserve margin which significantly constrain flexibility in scheduling maintenance. The derating was initiated in December, 2004. The derated capability was established by lowering the unit's output till the bearing temperature indication fell within the turbine manufacturer's recommended guidelines. Further testing was performed after the July, 2004, outage with an external cooling source that resulted in lowering the #1 bearing oil

temperature to within the limits established by the turbine manufacturer. The unit's operation

was returned to normal in August, 2004, after successfully demonstrating that the specified #1 bearing temperature could be sustained at maximum capacity.

Honolulu Unit 9 had an EFOR of 1% in 2004 and a 5-year average EFOR of 5.7%. Over the past few years, a substantial amount of refurbishment work has been performed on both units. In 2002 and 2003, major sections of turbine blades were replaced on Honolulu Unit 9

overhaul and maintenance outage, and the age of Waiau Unit 3, HECO estimated that the 5-year average EFOR of 9.2% would be reasonably representative of the future EFOR on the unit.

Waiau Unit 4 experienced an EFOR of 13.4% in 2004, and a 5-year average of 7.9%. Waiau Unit 4 is scheduled for a 14 week major overhaul beginning October, 2005. Based on the age of Waiau Unit 4, HECO estimated that the 5-year average EFOR of 7.9% would be reasonably representative of the future EFOR on the unit.

Waiau Units 5 and 6

Waiau Unit 5 experienced an EFOR of 1.0% in 2004, and a 5-year average of 2.3%. Substantial refurbishment work was performed on Waiau Unit 5 during a 27 week major overhaul from September, 2002, through March, 2003. HECO estimated that the 5-year average EFOR of 2.3% would be reasonably representative of the future EFOR on the unit.

Waiau Unit 6 experienced an EFOR of 0.3% in 2004, and a 5-year average EFOR of 2.3%. Waiau Unit 6 is currently nearing completion of its 11 week major overhaul, and is expected to be available for service on April 16, 2005. HECO estimated that the 5-year average EFOR of 2.3% would be reasonably representative of the future EFOR on the unit.

Waiau Units 7 and 8

Waiau Unit 7 experienced an EFOR of 1.2% in 2004, and a 5-year average of 1.2%. Waiau Unit 7 underwent an 8 week boiler overhaul in 2003. HECO estimated that the 5-year average EFOR of 1.2% would be reasonably representative of the future EFOR on the unit.

Waiau Unit 8 experienced an EFOR of 7.7% in 2004, and a 5-year average of 2.9%. Waiau Unit 8 underwent a 10.5 week major overhaul in 2004. Based on the substantial work that was performed during the overhaul HECO estimated that the 5-year average

EFOR of 2.9% would be reasonably representative of the future EFOR on the unit.

Waiau Units 9 and 10

Waiau Unit 9 experienced an EFOR of 63.2% in 2004, and a 5-year average of 26.1%.

Referring to the original 2005 overhaul schedule in HECO-627, Waiau Unit 9 was originally scheduled for a major overhaul in January, 2005. However, in October, 2004, Waiau Unit 9 experienced a significant forced outage event when a compressor blade failed and damaged other blades within the compressor. In addition to the compressor repairs a substantial amount of refurbishment work was performed on the unit during the outage, which continued into April, 2005. As of April 8, 2005, Waiau Unit 9 was returned to service.

Waiau Unit 10 experienced an EFOR of 4.4% in 2004, and a 5-year average of 14.5%.

Waiau Unit 10 is currently scheduled for a major overhaul beginning in July, 2005. A substantial amount of inspection and refurbishment work will be performed during this

maintenance scheduling flexibility. Reduced maintenance scheduling flexibility may cause units to operate at a derated capacity until maintenance outages can be scheduled.

Therefore, HECO estimates that the EFORs over the next five years will be closer to the actual 2004 EFORs experienced rather than to the 5-year averages.

Kahe Units 3 and 4

Kahe Unit 3 experienced an EFOR of 8.8% in 2004, due to a capacity derating from 90 MW down to lower capacities depending on furnace pressure limitations. The 5-year average EFOR was 3.3%. The higher furnace pressure that caused the derating was attributed to partially plugged cold-end sections of air preheater (APH) baskets. A maintenance outage was scheduled in January, 2005 to replace the cold-end APH baskets. However, upon inspection during the maintenance outage it was determined the hot-end baskets were also in need of replacement. A maintenance outage to replace the hot-end APH baskets has been scheduled in April, 2005, based on the delivery schedule of the replacement baskets. Kahe Unit 3 is also scheduled for a 12-week major unit overhaul in July, 2006. The relatively high EFOR for this unit in 2004 was an anomaly and the EFOR over the next five years would be better represented by the 5-year average of 3.3%.

Kahe Unit 4 experienced an EFOR of 1.4% in 2004, and a 5-year average EFOR of 2.6%. While the reliability of this unit was excellent in 2004 in terms of its EFOR, HECO believes that the EFOR on this unit is more likely to remain near its 5-year historical average with continued diligent maintenance. Kahe Unit 4 is scheduled for a 13.5 week major unit overhaul in January, 2006. Therefore, HECO estimates that the unit EFOR over the next five years will be closer to the 5-year average of 2.6% rather than to the 2004 EFOR.

Kahe Units 5 and 6

Kahe Unit 5 experienced an EFOR of 7.6% in 2004, and a 5-year average EFOR of 2.4%. This relatively high EFOR in 2004 was due to a capacity derating from 142MW down to lower capacities based on problems with the superheat attemperator which controls steam temperature to the turbine. The control issues have since been resolved and the unit returned to its normal capability of 142 MW. Kahe Unit 5 is also scheduled for a 3 week maintenance outage in January, 2007. Thus, the relatively high EFOR value for this unit in 2004 was anomalous and the EFOR over the next five years would be best represented by the 5-year average of 2.4%.

Kahe Unit 6 experienced an EFOR of 3.2% in 2004, and a 5-year average EFOR of 1.4%. Currently, Kahe Unit 6 is operating with a derating due to partial air preheater pluggage that results in high furnace pressure. Due to the impact of lower reserve margins on maintenance scheduling flexibility and that Kahe Unit 6 is scheduled for a 10.5 week major overhaul in May, 2005, the unit will continue to operate with the derating until then. The planned maintenance work is expected to restore this unit to a high level of reliability. Another consideration is that Kahe Unit 6 is the “sister unit” of Kahe Unit 5, as they are of nearly identical size and design. Considering all of these factors, the EFOR for this unit would be best represented by the same 5-year historical value of 2.4% for Kahe Unit 5.

Independent Power Producers – HECO estimated that the EFORs for the H-Power, AES Hawaii, and Kalaeloa units over the next five years will be 10%, 1% and 1%, respectively. These values are based on their long-term historical reliability.

- b. The breakdown by unit is provided in part a above. The same EFOR values were used for each of the years 2005 to 2009.

- c. Please refer to the response to part a. above.
- d. Please refer to the response to part a. above.
- e. Maintenance practices and applied technologies to maintain reasonable EFORs and EAFs in light of the current conditions under which the units are operated have been discussed in HECO T-6 and in greater detail in CA-IR-46 and 122. Projected load growth and reduced reserve margins will continue to require more operation from aging units and less flexibility to perform maintenance. Establishment of the night shift maintenance crew will help to mitigate some of the maintenance and operational risks that contribute to EFOR and EAF by allowing work requiring derating and risk conditions to be performed during off peak periods when reserve margins are less of an issue.

For each of the following work orders associated with production operations, please describe the work order and provide a monthly breakdown of charges by RA, NARUC Account, Expense Element and Payee for the periods January 2003 through February 2005, with an explanation of any unusual or non-recurring transactions included within the data provided:

- | | | |
|---|----------|--|
| a | AD000903 | Knapp v. AES/HECO/HEI |
| b | FA000343 | Waiau Power Plant Security - GUARDSMARK
KAHE POWER PLANT SECURITY - |

- | | | |
|---|----------|--|
| d | FA000347 | GUARDSMARK |
| e | HP000020 | IC-AES-HI PPA |
| f | HP000023 | IC-KPLP PPA |
| g | HP000025 | IC-NUG Guidelines Development |
| h | HP000032 | Honolulu PP - Clean Island Council fee |
| i | HP000033 | Waiau PP Clean Island Council Annual fee |
| j | HP000034 | Kahe PP-Clean Island Council Annual fee |
| k | HP000734 | City Water \$\$ for Honolulu Station |
| l | HP000735 | City Water \$\$ for Waiau Station |
| m | HP000736 | City Water \$\$ for Kahe Station |
| n | HP001357 | HNEI Fuel Cell Test Center-Public Commu |

Expense Element and Payee for the periods January 2003 through February 2005. Since copies of the Work Order Detail Report are voluminous, one set of copies will be provided to the Consumer Advocate and the Commission under separate transmittal. A narrative on how to read the report is provided on page 5. Included on pages 3 and 4 in this response are the NARUC accounts for each work order as well as an explanation for the transactions noted in the Work Order Detail Report.

**Hawaiian Electric Company Inc.
RATE CASE - 2005 TEST YEAR
SELECT WORK ORDERS**

CA-IR-462
DOCKET NO. 04-0113
PAGE 3 OF 264

	<u>Work Order</u>	<u>Description1</u>	<u>Description2</u>	<u>Acct</u>
a	AD000903	Knapp v. AES/HECO/HEI	Primarily for the collection of legal fees related to court case where complaint alleges that the State of Hawaii and Heco's other customer have been overcharged for electricity as a result of alleged excessive pricing.	557-Other Power Supply Expense
b	FA000343	Waiau PP Security-Guardsmark	24/7 Security enforcement: entry and exit gate operation and patrol, fence perimeter checks, vehicle inspections, parking enforcement, initial incident response, check building security (rounds).	506020-Misc Steam Power Exp-Waiau
c	FA000344	Kahe PP Security- Guardsmark	24/7 Security enforcement: entry and exit gate operation and patrol, fence perimeter checks, vehicle inspections, parking enforcement, initial incident response, check building security (rounds).	506030-Misc Steam Power Exp-Kahe
d	FA000347	Honolulu PP Security- Guardsmark	24/7 Security enforcement: entry and exit gate operation and patrol, fence perimeter checks, vehicle inspections, parking enforcement, initial incident response, check building security (rounds).	506010-Misc Steam Power Exp-Honolulu
e	HP000020	IC-AES-HI-PPA	Administor the contract with supplier AES for the purchase of power. Legal charge of \$70,248 for an amendment to the purchase power agreement.	557-Other Power Supply Expense
f	HP000023	IC-KPLP PPA	Administor the contract with supplier Kalaeloa for the purchase of power.	557-Other Power Supply Expense
g	HP000025	IC-NUG Guidelines Dev	Develop guidelines for non-utility generators who are interested in obtaining a power purchase agreement.	557-Other Power Supply Expense
h	HP000032	Hono PP- Clean Island Council Fee	Honolulu's portion of the annual membership fee paid for oil spill response readiness.	506010-Misc Steam Power Exp-Honolulu
i	HP000033	Waiau PP Clean Island Council Ann Fee	Waiau's portion of the annual membership fee paid for oil spill response readiness.	506020-Misc Steam Power Exp-Waiau
j	HP000034	Kahe PP Clean Island Council Ann Fee	Kahe's portion of the annual membership fee paid for oil spill response readiness.	506030-Misc Steam Power Exp-Kahe
k	HP000734	City Water \$\$ for Hono Station	Water used for steam production, domestic consumption and maintenance activity at the station.	502010-Steam Exp-Honolulu
l	HP000735	City Water \$\$ for Waiau Station	Water used primarily for domestic consumption and maintenance activity at the station.	502020-Steam Exp-Waiau
m	HP000736	City Water \$\$ for Kahe Station	Water used for steam production, domestic consumption and maintenance activity at the station.	502030-Steam Exp-Kahe
n	HP001357	HNEI Fuel Cell Test Center-Public Commun	Cost associated with community and public relations related to the Hawaii Natural Energy Institute Fuel Cell Centert. Request for the Fuel Cell Facility License was filed with the PUC, Docket No. 01-0480.	506030-Misc Steam Power Exp-Kahe
o	HP001360	Fuel Cell Test Center-Fac R&D Exp	Fuel Cell Test Center warehouse maintenance cost.	506030-Misc Steam Power Exp-Kahe

Hawaiian Electric Company Inc.
RATE CASE - 2005 TEST YEAR
SELECT WORK ORDERS

CA-IR-462
DOCKET NO. 04-0113
PAGE 4 OF 264

<u>Work Order</u>	<u>Description1</u>	<u>Description2</u>	<u>Acct</u>
p	HP001501 YP-GH-Rental Value of Cooke St. Warehouse	Rental cost for the Fuel Cell Test Center located in the Cooke Street warehouse.	506030-Misc Steam Power Exp-Kahe
q	HP001686 IC KPLP Capacity Add Options	Staff and legal cost related to negotiating with Kalaeloa for additional capacity.	557-Other Power Supply Expense
r	HP001789 Comp Bid Work - Generation Planning Div.	Staff and legal cost related to Order No. 20583, Docket No. 03-0372. PUC opened docket to institute a proceeding to investigate competitive bidding for new generation in Hawaii.	506030-Misc Steam Power Exp-Kahe
s	LA000198 Energy Corridor Lease Rent	Lease payment to the State of Hawaii Harbor Division for easement over State property related to the CIP to Waiau fuel oil pipeline.	507030-Rents Expense-Kahe
t	PR000244 SWO-HAZARD WSTE DISPOSAL (HONO STN)	Disposal of various hazardous waste material requiring special handling at the Honolulu station.	506010-Misc Steam Power Exp-Honolulu
u	PR000245 SWO-ASBESTOS REMOVAL (HONO STN)	Disposal of asbestos material requiring special handling at the Honolulu station.	506010-Misc Steam Power Exp-Honolulu
v	PR000249 SWO-HAZARDOUS WSTE DISPOSAL (KAHE)	Disposal of various hazardous waste material requiring special handling at the Kahe station.	506030-Misc Steam Power Exp-Kahe
w	PR000251 SWO-MERCURY DISPOSAL (KAHE)	Disposal of mercury material requiring special handling at the Kahe station.	506030-Misc Steam Power Exp-Kahe
x	PR000253 SWO-HAZARD WASTE DISPOSAL (WAIU)	Disposal of various hazardous waste material requiring special handling at the Waiau station.	506020-Misc Steam Power Exp-Waiu
y	PR000256 SWO-ASBESTOS REMOVAL (WAIU)	Disposal of asbestos material requiring special handling at the Waiau station.	506020-Misc Steam Power Exp-Waiu
z	PR002264 SWO-ASBESTOS REMOVAL/DISPOSAL (KAHE)	Disposal of asbestos material requiring special handling at the Kahe station.	506030-Misc Steam Power Exp-Kahe
aa	PR019330 PMO-Development Activities Work Order	Charges mainly for the weekly general meetings and general training held by the PSRO (Power Supply Reliability Optimization)Team in reviewing preventive maintenance performance. Includes \$91,701 to vendor EPRI Solutions who provided consultation services for PSRO continuous improvement and support of the Planning and Scheduling Tool Assistant (PASTA) and the reliability team.	506020-Misc Steam Power Exp-Waiu
ab	PR026259 PSRO Reliability Team Development	Training and meetings for the Equipment Owners and the Predictive Maintenance (PDM) Specialists in the PSRO program. Includes \$40,739 to vendor EPRI Solutions for updates to the software called Plantview which is used to monitor the preventive maintenance work.	506020-Misc Steam Power Exp-Waiu

Hawaiian Electric Company, Inc.
Rate Case – Test Year 2005
Work Order Detail Report - Narrative
Report No. 1652

Parameters:

- Selected one work order per report
- Selected date range: 1/1/03 – 2/28/05

Data represented is transaction data except for labor true-up and on-cost transactions (expense elements 155, 405, 406, 421, 422 and 423) which is totaled by months.

- Primary sort is by code block with similar transactions grouped together.
- Secondary sort within each group is chronologically ascending by transaction date.
- The dept. RA and Expense element is included in the code block for each transaction.
- A subtotal is provided for each group of transaction.
- For material purchases and outside service transactions, additional data provided such as supplier no., invoice no., invoice item no., invoice item description, voucher/journal entry no., voucher/journal entry description, stock code, stock description, purchase order no., unit of purchase and quantity.
- As needed the supplier name is handwritten in by the supplier no.
- A grand total is provided on the last page.

Due to the voluminous nature of the information, one copy (pages 6 – 264) will be provided to the Consumer Advocate and the Public Utilities Commission under separate transmittal.

CA-IR-463

Ref: HECO Response to CA-IR-49, Transmittal 2, Production Maintenance Outside Services Project Listing.

Please provide a comparison of actual total labor and non-labor charges for each overhaul and major inspection project (inclusive of the outside services amounts shown on this attachment) for each year 2000 through 2004 and with another column for comparison to the test period (by projected overhaul with 2005 projected expenses). Explain the known reasons for major fluctuations in overall levels of overhaul/inspection activity among the years.

HECO Response:

Please refer to HECO's response to CA-IR-180 for the costs for each overhaul and major inspection project for years 2000 through 2005. There are significant variations in the costs of individual overhauls based on the nature of the work performed. On CA-IR-180, page 3, summarizing the variation in the total overhaul expense from year-to-year, the only major fluctuation (> 20%) in actual overhaul costs was between years 2001 and 2002. In 2002 there were two major overhauls with total cost in excess of \$3.5M – P0000250-Kahe 6 Overhaul and P0000252-Waiiau 5 Overhaul. The Kahe 6 higher cost was attributable to the generator

10, and the need to overhaul Kahe 2 in 2005 instead of 2004 (given the Waiau 9 outage in late 2004).

CA-IR-464

Ref: WP-2220, Page 4 of 21 Energy Losses.

Estimated 2003 energy losses are set forth by step, indicating sales as a percentage of system input at 91.7 percent. In contrast, worksheet HLADATA of the Company's embedded cost of service spreadsheet file at rows 5 through 12 appears to employ different loss percentage data. Please explain and reconcile differences in loss information used for the test period and quantify any further adjustments required to the Company's study.

HECO Response:

The percent losses in the HLADATA at rows 5 through 12 represent the energy losses at the different voltage levels as a percent of HECO gross generation excluding auxiliary load, and are based on the loss study provided in HECO-WP-2202, page 146 - which assumed Kalaeloa capacity of 180 MW. The loss study provided in HECO-WP-2220 was based on Kalaeloa capacity of 209 MW. The Company's embedded cost of service study will be updated to use the energy losses based on Kalaeloa capacity of 209 MW.

CA-IR-465

Ref: HECO Response to CA-IR-226 Schedule J Ratchet.

What is the approximate annual revenue impact of the proposed change in the demand ratchet at present rate levels and at proposed rate levels?

HECO Response:

The estimated difference in the annual sales revenues for Schedule J at present rates with the proposed change in the demand ratchet is approximately \$133,193 or 1% more than the revenues based on the present rates with 75% demand ratchet, as provided on page 2 of this response.

This estimate is based on the recorded billing loads for 2003 for 5,013 Schedule J customers.

This estimate of the sales revenue impact represents the difference between the customers' base bills at present rates with the existing 75% demand ratchet and the customers' base bill at present rates with the proposed average demand ratchet.

The requested information of the revenue impact at proposed rates at the existing 75% demand ratchet is not available as it would require redesigning the proposed Schedule J rates. The proposed rate levels for Schedule J filed in direct testimony reflect the proposed change in the demand ratchet.

HAWAIIAN ELECTRIC COMPANY, INC.
SCHEDULE J - GENERAL POWER DEMAND
IMPACT OF PROPOSED CHANGE TO DEMAND RATCHET¹
ON CUSTOMERS' AVERAGE BASE BILL AT PRESENT RATES
DATA PERIOD: 2003

	Bill Impact Frequency Distribution ²		Total \$ Impact ³
	No of Customers	Percent	
No. of customers with Less than 0% Impact	96	1.90%	(\$3,539)
No. of customers with 0% Impact	1136	22.70%	\$1
No. of customers with 0.01 % to 0.50% impact	891	17.80%	\$9,579
No. of customers with 0.50% to 1.0% impact	1135	22.60%	\$30,538
No. of customers with 1.01 % to 1.50% impact	791	15.80%	\$33,320
No. of customers with 1.51% to 2.00% Impact	469	9.40%	\$29,677
No. of customers with 2.01% to 2.5% Impact	285	5.70%	\$17,100
No. of customers with 2.51% to 3.0% Impact	127	2.50%	\$11,039
No. of customers with 3.01% to 4.0% Impact	72	1.40%	\$5,110
No. of customers with 4.01% to 5.0% Impact	8	0.20%	\$200
No. of customers with 5.01% to 6.0% Impact	3	0.10%	\$168
No. of customers with > 6.0% Impact	0	0.00%	-
Total	5,013	100.00%	\$133,193

Average % Increase in Avg. Base Bill 0.85%

Total Base Revenues at Present Rates With the Present 75% Ratchet, \$/year \$13,344,969

Percent of Revenue Impact, % 1.0%

¹ Proposal to change the Schedule J demand ratchet from 75% ratchet to mean ratchet.

² Based on recorded billing data for 2003.

³ Represents the difference in the individual customers' base bills at present rates with 75% ratchet and at present rates with the proposed mean ratchet. The customers' base bills are calculated based on the recorded average kWh, average billing kW at 75% ratchet, and average billing kW at the proposed mean ratchet.

CA-IR-466

Ref: HECO responses to CA-IR-233 and CA-IR-234; T-22, pages 55 and 62, Time of Use off-peak energy proposed pricing.

With regard to proposed TOU-R and TOU-C energy rates, it appears that HECO is proposing Priority Peak Period energy prices reflective of a 5.0 cents/kwh increase over corresponding proposed Schedule R and Schedule G energy prices and with a 2.0 cents/kwh increase over Schedule R/G rates for the Mid-Peak Period. However, different discounts of 5.0 cents/kwh for TOU-C (Option 1) but only 3.5 cents/kwh for TOU-R are proposed for the Off-Peak Period. Please explain this disparity and provide complete copies of all analyses, workpapers and other information supportive of the proposed Off-peak rates.

HECO Response:

As stated in HECO response to CA-IR-233, part b., the lower price differential for the Schedule TOU-R off-peak energy rate is due to the proposed change in the time-of-use rating periods that expanded the off-peak hours by classifying the hours from 7:00 a.m. to 5:00 p.m. during weekends and holidays as off-peak hours. Please see HECO T-22, pages 55-56, HECO-2234, and HECO-2235.

If the residential off-peak energy differential is kept at 5.00 ¢/kWh – the same as in the Schedule TOU-R Pilot Program and in the proposed Schedule TOU-C, a significant number of residential customers could transfer to Schedule TOU-R and save on their electric bills without changing their load pattern, because of the expanded off-peak hours. The proposed lower differential in the residential off-peak energy rate is designed to minimize free-riders and realize the system benefits of the customers changing their usage pattern in response to time-of-use rates.

CA-IR-467

Ref: HECO-2216 and HECO-2217.

Please explain how HECO interpreted and applied the estimated marginal energy costs by time-of-use rating period and time-differentiated marginal demand-related costs in designing the TOU-R energy rates and TOU-R rating periods described at T-22, pages 54-55. Include any calculations and supporting documentation that is associated with your response.

HECO Response:

The proposed time-of-use energy rates in Schedule TOU-R are determined through proposed adjustments to the energy rate levels in the proposed Schedule R to reflect time-of-use

difference in the utility's costs of service. The proposed TOU-R rates are based on the

¢/kWh rate differential reflected in the proposed off-peak energy rate reflects about 50% of the estimated marginal energy cost for off-peak period for 2005 ($3.5¢ \div 7.29¢ = 48.0\%$).

The proposed total energy rate in Schedule R includes the non-fuel energy charge of 8.7859 ¢/kWh and the base fuel energy charge of 6.0520 ¢/kWh. The non-fuel energy charge recovers the class's demand-related cost from the Company's embedded cost-of-service study, as well as the embedded customer-related costs that are not recovered in the proposed customer charge. As indicated in the HECO Response to CA-IR-371, the Company's embedded cost-of-service study is the main basis of HECO's present rates and proposed rates, and the marginal cost study is one of the considerations in the rate design.

CA-IR-468

Ref: HECO-2216 and HECO-2217.

Please explain how HECO interpreted and applied the estimated marginal energy costs by time-of-use rating period and time-differentiated marginal demand-related costs in designing the newly proposed TOU-C energy rates, TOU-C demand charges and TOU-C rating periods described at T-22, pages 61-64. Include any calculations and supporting documentation that is associated with your response.

HECO Response:

See HECO Response to CA-IR-467, and to CA-IR-234. The determination of the rate differentials between the energy rate rates in the proposed Schedules G and J, and the time-of-use energy rates for priority peak period and mid-peak period in the proposed Schedule TOU-C for both the Non-Demand Service and the Demand Service is the same as the rate differentials in the proposed Schedule TOU-R. For instance, the 5 ¢/kWh rate differential between the priority peak energy charge of 18.82 ¢/kWh for the Schedule TOU-C Non-Demand Service and the energy charge of 13.82 ¢/kWh in the proposed Schedule G, reflects about 60% of the estimated 2005 marginal energy cost for the priority peak hours of 7.95 ¢/kWh provided in HECO-2216. The proposed priority peak energy rate for Schedule TOU-C Demand Service of 15.9083 ¢/kWh also reflects 5 ¢/kWh difference from the average energy rate of 10.9083 ¢/kWh in the proposed Schedule J. The average energy rate for the Schedule J at proposed rates is derived as follows:

$$\begin{aligned} \text{Revenues from energy charge} \div \text{Test-Year "J" Sales} &= \$220,009,600 \div 2,016,900 \text{ MWH} \\ &= 10.9083 \text{ ¢/kWh. (See HECO-2220.)} \end{aligned}$$

The rate differential of 2 ¢/kWh between the proposed mid-peak energy rate of 15.82 ¢/kWh in Schedule TOU-C Non-Demand Service and the proposed energy rate of 13.82 ¢/kWh in the Schedule G reflects about 25% of the estimated 2005 marginal energy cost for mid-peak hours of 7.91 ¢/kWh. The same 2 ¢/kWh rate difference is reflected in the proposed mid-peak energy rate

of 12.9083 ¢/kWh in Schedule TOU-C Demand Service and the average energy rate for the proposed Schedule J.

The proposed off-peak energy rate of 8.82 ¢/kWh for Schedule TOU-C Non-Demand Service is 5¢/kWh lower than the proposed energy charge for Schedule G, and is the same as the off-peak energy rate differential for the current Schedule TOU-R Pilot Program. This 5 ¢/kWh rate differential reflects approximately 70% of the estimated 2005 marginal energy cost for off-peak period of 7.29 ¢/kWh provided in HECO-2216. Alternatively, the proposed off-peak energy rate of 8.82 ¢/kWh for Schedule TOU-C Non-Demand Service may be viewed to include the allocated unit energy cost of 6.846 ¢/kWh for Schedule G and 1.974 ¢/kWh or about 25% of the 2005 marginal energy cost for off-peak hours ($1.974 \text{ ¢} \div 7.29 \text{ ¢} = 27\%$). See HECO-WP-2202, page 7, for the allocated unit energy cost for Schedule G. As indicated in HECO Response to CA-IR-234, the energy rate differences between the proposed Schedule G and the proposed Non-Demand energy rates in Schedule TOU-C (+5¢ for priority peak, +2¢ for mid-peak, and -5¢ for off-peak) are the same as the rate differences for the Option 2 Energy Rates of the current Schedule TOU-R pilot program.

The proposed off-peak energy rate of 7.0 ¢/kWh for Demand Service in Schedule TOU-C reflects a rate differential of 3.9083¢ from the average energy rate in the proposed Schedule J, as

approximately 45% of the full unit embedded demand cost for Schedule J (including the allocated DSM cost).

CA-IR-469

Ref: HECO-2217 and WP-2217, Pages 1 and 2 of 153 Marginal Cost Annual Combustion Turbine Cost.

Please provide the following information regarding the Company's asserted marginal cost of generation:

- a. A more legible copy of WP-2217, page 2, indicating the source of the data and explaining which values were used to develop the \$816/KW value on page 1.
- b. Reference to or calculations of the regression or other algorithms used to develop the 10.37 percent "General Plant Loading" on line 2 of WP-2217, page 1 of 153 (this is not apparent from the CA's review of electronic file: HECO_TY_2005_MARGINAL_COST_STUDY_V3.xls at worksheet A&G&GENP).
- c. Reference to or calculations of the regression or other algorithms used to develop the 0.43 percent "A&G Loading" on line 4 of WP-2217, page 1 of 153 (this is not apparent from the CA's review of electronic file: HECO_TY_2005_MARGINAL_COST_STUDY_V3.xls at worksheet A&G&GENP).
- d. Reference to supporting documentation and/or calculations used to develop the \$14.63 "Fixed O&M Expenses" on line 7 of WP-2217, page 1 of 153 (this is not apparent from the file: HECO_TY_2005_MARGINAL_COST_STUDY_V3.xls at worksheet GENCOST).
- e. Reference to or calculations of the regression or other algorithms used to develop the 61.73 percent "A&G Loading" on line 8 of WP-2217, page 1 of 153 (this is not apparent from the CA's review of electronic file: HECO_TY_2005_MARGINAL_COST_STUDY_V3.xls at worksheet A&G&GENP).
- f. Explain the basis of and provide calculations for the "Adjusted for Availability Factor" at 95 percent on line 15 of WP-2217, page 1 of 153.

HECO Response:

- a. An enlarged copy of HECO-WP-2217, page 2 is provided on page 4 of this response. The CT cost of \$816/kW is based on the \$769/kW CT cost in 2003 provided in HECO-WP-2217, page 2, and escalated by 3% per year.
- b. Please see HECO-WP-2217, pages 65 through 67 for the reference to the calculation of the 10.37% general plant loading used in HECO-WP-2217, page 1, line 2. The general plant loading is based on the parameter estimate (b-coefficient) from the regression analysis

relating the cumulative additions to general plant, to the cumulative additions to total electric plant excluding general plant. The general plant cost data is provided in HECO-WP-2217, page 65, col. G; and the total plant cost less general plant is provided in col. I of the same workpaper. The result of the regression analysis is provided in HECO-WP-2217, page 66.

- c. Please see HECO-WP-2217, pages 72 through 74 for the reference to the calculation of the plant-related A&G loading of 0.43% used in HECO-WP-2217, page 1, line 4. The estimated plant-related A&G loading is based on the parameter estimate (b-coefficient) from the regression analysis relating the plant-related A&G to the additions to total electric plant. The plant-related A&G data (sum of Accounts 923, 924, 927, 928, 931, 932, and 935) and the total plant additions data is provided in HECO-WP-2217, page 72, and the results of the regression analysis is provided in HECO-WP-2217, page 73.
- d. The fixed o&m cost of \$14.36/kW used in HECO-WP-2217, page 1, line 7, is based on the fixed o&m cost of \$13.54/kW in 2003 provided in HECO-WP-2217, page 2, and escalated by 3% per year.
- e. Please see HECO-WP-2217, pages 68 through 71 for the reference to the calculation of the non-plant related A&G loading of 61.73% used in HECO-WP-2217, page 1, line 8. The estimated non-plant related A&G loading is based on the parameter estimate (b-coefficient) from the regression analysis relating the non-plant related A&G to the total o&m excluding fuel and A&G. The non-plant related A&G data (sum of Accounts 920, 921, 922, 925, 926, 929, 930, FICA, FUTA, and SUTA) and the total o&m excluding fuel and A&G is provided in HECO-WP-2217, pages 68-69, and the results of the regression analysis is provided in HECO-WP-2217, page 70.

- f. The estimated availability factor of 95% used in HECO-WP-2217, page 1, line 15, is based on the estimated forced outage rate of 4% and average planned outage % time (approximately 1.9% based on planned outage of 1 week per year) provided in HECO-WP-2217, page 2. The Availability Factor was determined as follows:

$$\text{Availability Factor} = 100\% - 4\% - 1.9\% = 96\% \text{ (rounded to 95\%)}$$

Table 3
Simple Cycle Aiston GT11N3-EV Unit Data Sheet

UNIT DATA SHEET
HECO SCCT Data Update 2003

Date: January 8, 2004
By: Black & Veatch
Supersedes: August 12, 2003

Utility: HECO
Unit Type: Simple Cycle Aiston GT11N3-EV
Fuel Type: No. 2 Diesel Fuel Oil
Site: Barber's Point Tank Farm

Unit Ratings at Average Conditions:

		Gross	Net
Normal Top Load	MW	108.54	107.27
Emergency	MW	NA	NA
Minimum	MW	27.08	26.31

Ambient Conditions:

Dry Bulb Temperature	F	86
Relative Humidity	percent	78
CT Inlet Air Temperature	F	86

Operating Mode:

Duty Cycle		Peak
Capacity Factor	percent	51

Commercial Service:

Date Available	month/year	January 2009
Service Life	years	30

Lead Time (Prior to Commercial Oper):

	Normal	Expedited
Permitting	months	66 62

Capacity and Heat Rate Data at New and Clean Conditions:

Load	#	Condp Inlet	Gross Load	HHV Fuel Input	Gross Load Split		Auxiliary Load Split		Net Load	Net Plant Heat Rate	Quick Load Pickup
					CTG	STG	CTG	BOP			
Emergency	1	86/70	NA	NA	NA	NA	NA	NA	NA	NA	NA
Normal Top	1	86/70	111.90	1,314	111.90	0.00	0.86	0.81	110.83	11,876	-
75 percent	1	86/70	83.90	1,041	83.90	0.00	0.68	0.47	82.77	12,575	28.00
50 percent	1	86/70	58.00	794	58.00	0.00	0.48	0.33	55.91	14,425	55.90
25 percent	1	86/70	27.90	537	27.90	0.00	0.26	0.19	27.05	19,841	84.00
30 percent	-	-	-	-	-	-	-	-	-	-	-
25 percent	-	-	-	-	-	-	-	-	-	-	-
Minimum	1	86/70	27.90	537	27.90	0.00	0.68	0.19	27.05	19,841	84.00

Capacity and Heat Rate Data at Average Conditions:

Emergency	1	86/70	NA	NA	NA	NA	NA	NA	NA	NA	NA
Normal Top	1	86/70	108.54	1,293	108.54	0.00	0.86	0.81	107.27	12,054	-
75 percent	1	86/70	81.38	1,024	81.38	0.00	0.68	0.47	80.25	12,763	27.18
50 percent	1	86/70	54.32	781	54.32	0.00	0.48	0.33	53.33	14,841	54.22
25 percent	1	86/70	27.06	528	27.06	0.00	0.26	0.19	26.21	20,139	81.48
30 percent	-	-	-	-	-	-	-	-	-	-	-

General Site/Technology Characteristics:

Fuel Delivery
Fuel Storage Onsite/Offsite
Water Supply Source
CTG Inlet Air Cooling
Cycle Cooling
Waste Water Disposal
Solid Waste Disposal
Total Land Requirement

Refinery/Pipeline
15 days
Brackish Wells
No
Injection Wells
On-Island Landfill

acres 3.5

Daily Resource Requirements at Base Load at 89° F:

Fuel	bpd	6,204
Service & Plant Water	mgd	0.907
Cooling Tower Makeup	mgd	-
Supply Water Temperature	F	79

Waste Streams:

Solid Waste	tpd	-
Waste Water Discharge	mgd	0.881
Water Discharge Temperature	F	90
Thermal Discharge	MBS/d	60

CA-IR-470

Ref: HECO-WP-2217, Pages 1 and 3 of 153 Marginal Cost of Service “Annual Economic Charge Related to Capital Investment.”

The levelized annual carrying charge rates for production, transmission and distribution substation investment of 11.22%, 9.33% and 9.91% respectively, appear to recognize an after tax cost of capital of 8.15 percent reduced by an inflation value of 2.0 percent for “Inflation net of Technical Progress” (see HECO_TY_2005_MARGINAL_COST_STUDY_V3.xls at worksheet TR-ECC at cell H21 and the referenced sheet ECCTRANS at row 21). Please provide the following information:

- a. Explain the basis for this proposed derivation of a carrying charge rate.
- b. Describe what is meant by “technical progress” in relation to inflation.
- c. Explain why a measure of inflation is removed from the after tax cost of capital.
- d. Provide complete copies of authoritative support for your responses to parts (a) through (c).

HECO Response:

- a. As stated in HECO T-22, page 15, HECO’s Marginal Cost Study’s methodology is based on the NERA method. Economic carrying charge is used in marginal cost studies to convert the load-growth related marginal capital investment into annual marginal cost. The derivation of the economic carrying charge used in the study is based on the NERA method which assumes that the economic carrying charge increases with inflation net of technological progress which reflects the change in price due to new technology or due to technological improvements. A discussion of the NERA’s determination of the economic carrying charge is provided in the NERA Marginal Cost Method for Electric Utilities, Section III. Please see HECO response to CA-IR-223

V3.xls calculates the annual economic carrying charge in constant dollars. A discussion of the NERA methodology is provided in the NERA Marginal Cost Method for Electric Utilities, Section III. See HECO response to CA-IR-223.

- d. See HECO response to part a. above, and HECO's response to CA-IR-223.

CA-IR-471

Ref: HECO-2217 "Period Assignment Factor" and T-22, page 55.

The Company appears to apply period weighting factors to its calculated marginal annual demand-related costs on HECO-2217 based upon the relative probability of peak conditions occurring within particular time of use periods. Please provide the following information:

a. Explain the logic behind the Company's weighting factors approach, using currently

effective time of use periods,

b. Explain why the shifting of holidays into the off-peak and mid-peak periods tends to increase the probability of a peak during the priority period from approximately 58.8 percent to about 75 percent (see Copy of Relative prob peak-04_TY2005-REV-CM.xls at Summary prob peak 2005).

HECO Response:

- a. The Company's marginal cost study used the probability of peak based on the currently effective time-of-use periods as the basis for the period assignment of the estimated marginal demand cost for the following reasons:
1. The only difference between the proposed time-of-use rate for use in proposed Schedule TOU-R and the current time-of-use period is the shifting of the hours from 7:00 a.m. to 9:00 p.m. on weekends and holidays to mid-peak and off-peak.
 2. The current effective time-of-use rating periods will continue to be used for the existing commercial time-of-use management riders (Riders T and M), Schedule U, and for the new proposed Schedule TOU-C.
- b. Shifting the holidays into the mid-peak and off-peak periods tends to increase the probability of peak period assignment for the priority peak hours from about 58.8% to 75% because the holiday load levels, like the weekend load levels, are lower than the non-holiday weekdays and their inclusion in the priority peak hours tend to lower the relative peak probability for priority peak period. Classifying the holidays in the same time-of-use periods as the

weekends results in higher average hourly loads for the non-holiday weekdays, and generally lower standard deviation for each hour. The hourly average load and standard deviation are used in the calculation of the hourly probability of peak. Please see the supporting data provided on pages 3 through 14 of this response.

Hawaiian Electric Company, Inc.
Comparison of Probability of Peak For Priority Peak Period Excluding Holidays and Including Holidays
January 2005 - Weekday

Priority Peak Excluding Holidays ¹					Priority Peak Including Holidays ²				
Jan-05	Avg Load	Standard	Prob of Peak	Relative	Jan-05	Avg Load	Standard	Prob of Peak	Relative
Days = 21	(MW)	Deviation	For Each Hr	Prob Peak	Days = 21	(MW)	Deviation	For Each Hr	Prob Peak
Hr1	636.619048	24.495869	0.00000000	0.00000000	Hr1	636.619048	24.495869	0.00000000	0.00000000
Hr2	607.809524	23.288665	0.00000000	0.00000000	Hr2	607.809524	23.288665	0.00000000	0.00000000
Hr3	594.666667	22.802047	0.00000000	0.00000000	Hr3	594.666667	22.802047	0.00000000	0.00000000
Hr4	602.619048	22.608574	0.00000000	0.00000000	Hr4	602.619048	22.608574	0.00000000	0.00000000
Hr5	658.238095	24.060143	0.00000000	0.00000000	Hr5	658.238095	24.060143	0.00000000	0.00000000
Hr6	786.428571	34.481258	0.00000000	0.00000000	Hr6	786.428571	34.481258	0.00000000	0.00000000
Hr7	918.619048	50.621612	0.00000000	0.00000000	Hr7	918.619048	50.621612	0.00000000	0.00000000
Hr8	946.904762	42.085514	0.00000000	0.00000000	Hr8	946.904762	42.085514	0.00000000	0.00000000
Hr9	1007.190476	40.805170	0.00000000	0.00000000	Hr9	1007.190476	40.805170	0.00000000	0.00000000
Hr10	1048.714286	39.180535	0.00000000	0.00000000	Hr10	1048.714286	39.180535	0.00000000	0.00000000
Hr11	1065.714286	41.901244	0.00000000	0.00000000	Hr11	1065.714286	41.901244	0.00000000	0.00000000
Hr12	1071.857143	44.432292	0.00000002	8.97406E-08	Hr12	1071.857143	44.432292	0.00000002	5.37001E-08
Hr13	1075.523810	44.410155	0.00000003	1.34611E-07	Hr13	1075.523810	44.410155	0.00000003	8.05501E-08
Hr14	1070.571429	44.857075	0.00000002	8.97406E-08	Hr14	1070.571429	44.857075	0.00000002	5.37001E-08
Hr15	1064.238095	46.426183	0.00000003	1.34611E-07	Hr15	1064.238095	46.426183	0.00000003	8.05501E-08
Hr16	1059.142857	46.361930	0.00000002	8.97406E-08	Hr16	1059.142857	46.361930	0.00000002	5.37001E-08
Hr17	1052.571429	45.116041	0.00000000	0.00000000	Hr17	1052.571429	45.116041	0.00000000	0.00000000
Hr18	1085.238095	44.422860	0.00000010	4.48703E-07	Hr18	1085.238095	44.422860	0.00000010	2.685E-07
Hr19	1153.095238	39.178955	0.00001605	7.20169E-05	Hr19	1153.095238	39.178955	0.00001605	4.30943E-05
Hr20	1087.952381	39.675529	0.00000000	0.00000000	Hr20	1087.952381	39.675529	0.00000000	0.00000000
Hr21	1007.714286	34.284315	0.00000000	0.00000000	Hr21	1007.714286	34.284315	0.00000000	0.00000000
Hr22	910.904762	30.185932	0.00000000	0.00000000	Hr22	910.904762	30.185932	0.00000000	0.00000000
Hr23	795.857143	26.582486	0.00000000	0.00000000	Hr23	795.857143	26.582486	0.00000000	0.00000000
Hr24	697.476190	25.600037	0.00000000	0.00000000	Hr24	697.476190	25.600037	0.00000000	0.00000000

Hawaiian Electric Company, Inc.
Comparison of Probability of Peak For Priority Peak Period Excluding Holidays and Including Holidays
February 2005 - Weekday

Priority Peak Excluding Holidays ¹					Priority Peak Including Holidays ²				
Feb-05	Avg Load (MW)	Standard Deviation	Prob of Peak For Each Hr	Relative Prob Peak	Feb-05	Avg Load (MW)	Standard Deviation	Prob of Peak For Each Hr	Relative Prob Peak
Days =20					Days=20				
Hr1	636.350000	11.851160	0.00000000	0.00000000	Hr1	636.350000	11.851160	0.00000000	0.00000000
Hr2	612.100000	10.982762	0.00000000	0.00000000	Hr2	612.100000	10.982762	0.00000000	0.00000000
Hr3	602.050000	10.898938	0.00000000	0.00000000	Hr3	602.050000	10.898938	0.00000000	0.00000000
Hr4	608.100000	11.548069	0.00000000	0.00000000	Hr4	608.100000	11.548069	0.00000000	0.00000000
Hr5	654.000000	15.043796	0.00000000	0.00000000	Hr5	654.000000	15.043796	0.00000000	0.00000000
Hr6	770.700000	31.273160	0.00000000	0.00000000	Hr6	770.700000	31.273160	0.00000000	0.00000000
Hr7	908.400000	51.491849	0.00000000	0.00000000	Hr7	908.400000	51.491849	0.00000000	0.00000000
Hr8	940.650000	44.870897	0.00000000	0.00000000	Hr8	940.650000	44.870897	0.00000000	0.00000000
Hr9	1003.200000	40.747748	0.00000000	0.00000000	Hr9	1003.200000	40.747748	0.00000000	0.00000000
Hr10	1042.900000	39.783493	0.00000000	0.00000000	Hr10	1042.900000	39.783493	0.00000000	0.00000000
Hr11	1059.550000	39.464141	0.00000000	0.00000000	Hr11	1059.550000	39.464141	0.00000000	0.00000000
Hr12	1064.050000	41.236768	0.00000000	0.00000000	Hr12	1064.050000	41.236768	0.00000000	0.00000000
Hr13	1065.050000	45.247245	0.00000001	4.27336E-08	Hr13	1065.050000	45.247245	0.00000001	2.55715E-08
Hr14	1061.500000	48.415417	0.00000007	2.99135E-07	Hr14	1061.500000	48.415417	0.00000007	1.79E-07
Hr15	1059.850000	49.163824	0.00000009	3.84603E-07	Hr15	1059.850000	49.163824	0.00000009	2.30143E-07
Hr16	1055.650000	46.212638	0.00000001	4.27336E-08	Hr16	1055.650000	46.212638	0.00000001	2.55715E-08
Hr17	1049.250000	38.169808	0.00000000	0.00000000	Hr17	1049.250000	38.169808	0.00000000	0.00000000
Hr18	1065.700000	31.053604	0.00000000	0.00000000	Hr18	1065.700000	31.053604	0.00000000	0.00000000
Hr19	1152.500000	41.959253	0.00004877	0.000208412	Hr19	1152.500000	41.959253	0.00004877	0.000124712
Hr20	1085.450000	44.684243	0.00000012	5.12804E-07	Hr20	1085.450000	44.684243	0.00000012	3.06857E-07
Hr21	1003.800000	38.810742	0.00000000	0.00000000	Hr21	1003.800000	38.810742	0.00000000	0.00000000
Hr22	897.400000	27.315698	0.00000000	0.00000000	Hr22	897.400000	27.315698	0.00000000	0.00000000
Hr23	778.700000	19.491159	0.00000000	0.00000000	Hr23	778.700000	19.491159	0.00000000	0.00000000
Hr24	686.850000	16.626786	0.00000000	0.00000000	Hr24	686.850000	16.626786	0.00000000	0.00000000
Priority Peak Total			0.000208925		Priority Peak Total			0.00012502	

No observed holiday.

¹ Classify holidays in the same time-of-use periods as weekends (shifted to mid-peak and off-peak).

² Holidays are not differentiated from non-holiday weekdays.

Hawaiian Electric Company, Inc.
Comparison of Probability of Peak For Priority Peak Period Excluding Holidays and Including Holidays
March 2005 - Weekday

Priority Peak Excluding Holidays ¹					Priority Peak Including Holidays ²				
Mar-05	Avg Load (MW)	Standard Deviation	Prob of Peak For Each Hr	Relative Prob Peak	Mar-05	Avg Load (MW)	Standard Deviation	Prob of Peak For Each Hr	Relative Prob Peak
Days=23					Days=23				
Hr1	646.869565	8.884636	0.00000000	0.00000000	Hr1	646.869565	8.884636	0.00000000	0.00000000
Hr2	626.304348	8.270620	0.00000000	0.00000000	Hr2	626.304348	8.270620	0.00000000	0.00000000
Hr3	616.652174	7.848617	0.00000000	0.00000000	Hr3	616.652174	7.848617	0.00000000	0.00000000
Hr4	619.956522	7.951434	0.00000000	0.00000000	Hr4	619.956522	7.951434	0.00000000	0.00000000
Hr5	657.652174	9.003074	0.00000000	0.00000000	Hr5	657.652174	9.003074	0.00000000	0.00000000
Hr6	758.000000	18.785875	0.00000000	0.00000000	Hr6	758.000000	18.785875	0.00000000	0.00000000
Hr7	872.391304	31.770110	0.00000000	0.00000000	Hr7	872.391304	31.770110	0.00000000	0.00000000
Hr8	944.434783	27.317703	0.00000000	0.00000000	Hr8	944.434783	27.317703	0.00000000	0.00000000
Hr9	1022.043478	29.764955	0.00000000	0.00000000	Hr9	1022.043478	29.764955	0.00000000	0.00000000
Hr10	1072.956522	31.456288	0.00000000	0.00000000	Hr10	1072.956522	31.456288	0.00000000	0.00000000
Hr11	1095.304348	33.055648	0.00000000	0.00000000	Hr11	1095.304348	33.055648	0.00000000	0.00000000
Hr12	1104.913043	35.018064	0.00000000	0.00000000	Hr12	1104.913043	35.018064	0.00000000	0.00000000
Hr13	1112.869565	37.220845	0.00000002	9.82874E-08	Hr13	1112.869565	37.220845	0.00000002	5.88143E-08
Hr14	1111.304348	39.508842	0.00000011	5.4058E-07	Hr14	1111.304348	39.508842	0.00000011	3.23479E-07
Hr15	1107.608696	40.544856	0.00000014	6.88011E-07	Hr15	1107.608696	40.544856	0.00000014	4.117E-07
Hr16	1099.347826	38.224943	0.00000001	4.91437E-08	Hr16	1099.347826	38.224943	0.00000001	2.94072E-08
Hr17	1084.608696	34.619673	0.00000000	0.00000000	Hr17	1084.608696	34.619673	0.00000000	0.00000000
Hr18	1085.086957	36.094463	0.00000000	0.00000000	Hr18	1085.086957	36.094463	0.00000000	0.00000000
Hr19	1151.434783	45.177253	0.00013492	0.000663047	Hr19	1151.434783	45.177253	0.00013492	0.000396762
Hr20	1107.956522	48.800595	0.00001008	4.95368E-05	Hr20	1107.956522	48.800595	0.00001008	2.96424E-05
Hr21	1016.956522	38.459516	0.00000000	0.00000000	Hr21	1016.956522	38.459516	0.00000000	0.00000000
Hr22	901.260870	24.550907	0.00000000	0.00000000	Hr22	901.260870	24.550907	0.00000000	0.00000000
Hr23	780.869565	15.297963	0.00000000	0.00000000	Hr23	780.869565	15.297963	0.00000000	0.00000000
Hr24	694.217391	12.184030	0.00000000	0.00000000	Hr24	694.217391	12.184030	0.00000000	0.00000000
Priority Peak Total				0.00071258	Priority Peak Total				0.00042640

No observed holiday.

¹ Classify holidays in the same time-of-use periods as weekends (shifted to mid-peak and off-peak).

² Holidays are not differentiated from non-holiday weekdays.

Hawaiian Electric Company, Inc.
Comparison of Probability of Peak For Priority Peak Period Excluding Holidays and Including Holidays
April 2005 - Weekday

Priority Peak Excluding Holidays ¹					Priority Peak Including Holidays ²				
Apr-05	Avg Load	Standard	Prob of Peak	Relative	Apr-05	Avg Load	Standard	Prob of Peak	Relative
Days=21	(MW)	Deviation	For Each Hr	Prob Peak	Days=21	(MW)	Deviation	For Each Hr	Prob Peak
Hr1	652.095238	8.049253	0.00000000	0.00000000	Hr1	652.095238	8.049253	0.00000000	0.00000000
Hr2	636.190476	6.470078	0.00000000	0.00000000	Hr2	636.190476	6.470078	0.00000000	0.00000000
Hr3	629.428571	5.954590	0.00000000	0.00000000	Hr3	629.428571	5.954590	0.00000000	0.00000000
Hr4	632.380952	6.168275	0.00000000	0.00000000	Hr4	632.380952	6.168275	0.00000000	0.00000000
Hr5	663.095238	8.030596	0.00000000	0.00000000	Hr5	663.095238	8.030596	0.00000000	0.00000000
Hr6	763.380952	16.298700	0.00000000	0.00000000	Hr6	763.380952	16.298700	0.00000000	0.00000000
Hr7	884.857143	28.811952	0.00000000	0.00000000	Hr7	884.857143	28.811952	0.00000000	0.00000000
Hr8	963.809524	27.262830	0.00000000	0.00000000	Hr8	963.809524	27.262830	0.00000000	0.00000000
Wp0	1043.761005	31.745216	0.00000000	0.00000000	Wp0	1043.761005	31.745216	0.00000000	0.00000000

Hawaiian Electric Company, Inc.
Comparison of Probability of Peak For Priority Peak Period Excluding Holidays and Including Holidays
May 2005 - Weekday

Priority Peak Excluding Holidays ¹					Priority Peak Including Holidays ²				
May-05	Avg Load (MW)	Standard Deviation	Prob of Peak For Each Hr	Relative Prob Peak	May-05	Avg Load (MW)	Standard Deviation	Prob of Peak For Each Hr	Relative Prob Peak
Days=21					Days=22				
Hr1	674.285714	13.300913	0.00000000	0.00000000	Hr1	674.772727	13.179825	0.00000000	0.00000000
Hr2	647.238095	11.635741	0.00000000	0.00000000	Hr2	647.500000	11.421575	0.00000000	0.00000000
Hr3	634.333333	10.140677	0.00000000	0.00000000	Hr3	634.454545	9.912605	0.00000000	0.00000000
Hr4	640.047619	9.249196	0.00000000	0.00000000	Hr4	639.818182	9.090216	0.00000000	0.00000000
Hr5	685.238095	11.605623	0.00000000	0.00000000	Hr5	683.590909	13.710125	0.00000000	0.00000000
Hr6	795.380952	28.620755	0.00000000	0.00000000	Hr6	790.000000	37.644958	0.00000000	0.00000000
Hr7	917.333333	42.192811	0.00000000	0.00000000	Hr7	909.181818	56.189845	0.00000000	0.00000000
Hr8	990.333333	38.144899	0.00000000	0.00000000	Hr8	983.181818	50.109059	0.00000000	0.00000000
Hr9	1058.428571	33.996428	0.00000000	0.00000000	Hr9	1052.454545	43.426706	0.00000000	0.00000000
Hr10	1099.761905	31.046586	0.00000000	0.00000000	Hr10	1094.772727	38.283320	0.00000000	0.00000000
Hr11	1118.476190	32.285630	0.00000000	0.00000000	Hr11	1113.818182	38.341369	0.00000007	1.969E-07
Hr12	1128.380952	34.182563	0.00000002	8.97406E-08	Hr12	1123.590909	40.219231	0.00000086	2.41906E-06
Hr13	1136.142857	36.450358	0.00000040	1.79481E-06	Hr13	1131.045455	42.860213	0.00000797	2.24185E-05
Hr14	1134.809524	37.492158	0.00000067	3.00631E-06	Hr14	1129.772727	43.552849	0.00000952	2.67784E-05
Hr15	1132.809524	35.668781	0.00000014	6.28184E-07	Hr15	1128.409091	40.468282	0.00000178	5.00689E-06
Hr16	1123.809524	33.237959	0.00000000	0.00000000	Hr16	1120.636364	35.688528	0.00000002	5.62572E-08
Hr17	1105.428571	28.582462	0.00000000	0.00000000	Hr17	1103.909091	28.789729	0.00000000	0.00000000
Hr18	1088.428571	25.586269	0.00000000	0.00000000	Hr18	1087.681818	25.214105	0.00000000	0.00000000
Hr19	1096.190476	27.868655	0.00000000	0.00000000	Hr19	1095.090909	27.681710	0.00000000	0.00000000
Hr20	1113.571429	31.523914	0.00000000	0.00000000	Hr20	1113.863636	30.794705	0.00000000	0.00000000
Hr21	1045.428571	28.918111	0.00000000	0.00000000	Hr21	1045.818182	28.280292	0.00000000	0.00000000
Hr22	942.190476	20.048988	0.00000000	0.00000000	Hr22	942.727273	19.727143	0.00000000	0.00000000
Hr23	825.809524	17.577312	0.00000000	0.00000000	Hr23	825.863636	17.155578	0.00000000	0.00000000
Hr24	732.285714	16.103238	0.00000000	0.00000000	Hr24	732.409091	15.725803	0.00000000	0.00000000
Priority Peak Total			0.00000000		Priority Peak Total			0.00000000	

Holiday: Memorial Day - May 30, 2005.

- ¹ Classify holidays in the same time-of-use periods as weekends (shifted to mid-peak and off-peak).
² Holidays are not differentiated from non-holiday weekdays.

Hawaiian Electric Company, Inc.
Comparison of Probability of Peak For Priority Peak Period Excluding Holidays and Including Holidays
June 2005 - Weekday

Priority Peak Excluding Holidays ¹					Priority Peak Including Holidays ²				
Jun-05	Avg Load (MW)	Standard Deviation	Prob of Peak For Each Hr	Relative Prob Peak	Jun-05	Avg Load (MW)	Standard Deviation	Prob of Peak For Each Hr	Relative Prob Peak
Days=22					Days=22				
Hr1	708.545455	9.059209	0.00000000	0.00000000	Hr1	708.545455	9.059209	0.00000000	0.00000000
Hr2	678.363636	8.203051	0.00000000	0.00000000	Hr2	678.363636	8.203051	0.00000000	0.00000000
Hr3	662.590909	7.576022	0.00000000	0.00000000	Hr3	662.590909	7.576022	0.00000000	0.00000000
Hr4	667.045455	7.858737	0.00000000	0.00000000	Hr4	667.045455	7.858737	0.00000000	0.00000000
Hr5	711.136364	8.114041	0.00000000	0.00000000	Hr5	711.136364	8.114041	0.00000000	0.00000000
Hr6	810.181818	15.202244	0.00000000	0.00000000	Hr6	810.181818	15.202244	0.00000000	0.00000000
Hr7	927.045455	20.364482	0.00000000	0.00000000	Hr7	927.045455	20.364482	0.00000000	0.00000000
Hr8	1017.409091	25.800810	0.00000000	0.00000000	Hr8	1017.409091	25.800810	0.00000000	0.00000000
Hr9	1088.681818	27.173843	0.00000000	0.00000000	Hr9	1088.681818	27.173843	0.00000000	0.00000000
Hr10	1135.318182	27.513436	0.00000000	0.00000000	Hr10	1135.318182	27.513436	0.00000000	0.00000000
Hr11	1159.363636	30.288369	0.00000012	5.64084E-07	Hr11	1159.363636	30.288369	0.00000012	3.37543E-07
Hr12	1169.181818	31.845814	0.00000201	9.44841E-06	Hr12	1169.181818	31.845814	0.00000201	5.65385E-06
Hr13	1173.227273	31.929881	0.00000388	1.82387E-05	Hr13	1173.227273	31.929881	0.00000388	1.09139E-05
Hr14	1172.363636	32.795972	0.00000594	2.79222E-05	Hr14	1172.363636	32.795972	0.00000594	1.67084E-05
Hr15	1168.590909	33.251794	0.00000464	2.18112E-05	Hr15	1168.590909	33.251794	0.00000464	1.30517E-05
Hr16	1159.000000	30.304801	0.00000011	5.17077E-07	Hr16	1159.000000	30.304801	0.00000011	3.09415E-07
Hr17	1138.045455	25.925676	0.00000000	0.00000000	Hr17	1138.045455	25.925676	0.00000000	0.00000000
Hr18	1114.181818	22.854897	0.00000000	0.00000000	Hr18	1114.181818	22.854897	0.00000000	0.00000000
Hr19	1098.363636	22.831777	0.00000000	0.00000000	Hr19	1098.363636	22.831777	0.00000000	0.00000000
Hr20	1134.772727	23.768590	0.00000000	0.00000000	Hr20	1134.772727	23.768590	0.00000000	0.00000000
Hr21	1074.545455	22.094445	0.00000000	0.00000000	Hr21	1074.545455	22.094445	0.00000000	0.00000000
Hr22	980.772727	14.870654	0.00000000	0.00000000	Hr22	980.772727	14.870654	0.00000000	0.00000000
Hr23	867.727273	10.319569	0.00000000	0.00000000	Hr23	867.727273	10.319569	0.00000000	0.00000000
Hr24	769.363636	10.790408	0.00000000	0.00000000	Hr24	769.363636	10.790408	0.00000000	0.00000000
Priority Peak Total			0.00000000		Priority Peak Total			0.00000000	

No observed holiday.

¹ Classify holidays in the same time-of-use periods as weekends (shifted to mid-peak and off-peak).

² Holidays are not differentiated from non-holiday weekdays.

Hawaiian Electric Company, Inc.
Comparison of Probability of Peak For Priority Peak Period Excluding Holidays and Including Holidays
July 2005 - Weekday

Priority Peak Excluding Holidays ¹					Priority Peak Including Holidays ²				
Jul-05	Avg Load (MW)	Standard Deviation	Prob of Peak For Each Hr	Relative Prob Peak	Jul-05	Avg Load (MW)	Standard Deviation	Prob of Peak For Each Hr	Relative Prob Peak
Days=20					Days=21				
Hr1	728.250000	15.804313	0.00000000	0.00000000	Hr1	727.523810	15.759502	0.00000000	0.00000000
Hr2	698.100000	14.768031	0.00000000	0.00000000	Hr2	697.285714	14.869912	0.00000000	0.00000000
Hr3	682.250000	15.071322	0.00000000	0.00000000	Hr3	681.142857	15.541190	0.00000000	0.00000000
Hr4	685.950000	15.756285	0.00000000	0.00000000	Hr4	684.380952	16.957229	0.00000000	0.00000000
Hr5	726.300000	20.739233	0.00000000	0.00000000	Hr5	723.523810	23.884344	0.00000000	0.00000000
Hr6	823.500000	36.755952	0.00000000	0.00000000	Hr6	817.142857	46.174978	0.00000000	0.00000000
Hr7	934.000000	46.901913	0.00000000	0.00000000	Hr7	925.476190	60.129543	0.00000000	0.00000000
Hr8	1024.000000	49.713918	0.00000000	0.00000000	Hr8	1015.238095	62.929250	0.00000088	2.3628E-06
Hr9	1097.800000	50.512739	0.00000781	3.3375E-05	Hr9	1089.428571	62.415200	0.00014167	0.00038038
Hr10	1146.050000	47.749869	0.00018601	0.00079489	Hr10	1138.142857	58.983291	0.00128328	0.00344561
Hr11	1171.550000	50.921482	0.00227898	0.00973891	Hr11	1163.333333	62.298743	0.00713175	0.01914877
Hr12	1181.000000	52.513657	0.00507378	0.02168211	Hr12	1172.523810	64.253886	0.01277588	0.03430327
Hr13	1186.950000	55.292024	0.00979861	0.04187302	Hr13	1177.904762	67.988900	0.02112020	0.05670780
Hr14	1186.300000	56.073354	0.01036018	0.04427281	Hr14	1177.047619	69.171870	0.02227923	0.05981979
Hr15	1183.500000	56.701898	0.00972525	0.04155953	Hr15	1174.142857	69.950186	0.02128146	0.05714078
Hr16	1174.950000	53.382902	0.00411808	0.01759805	Hr16	1166.238095	65.582700	0.01119876	0.03006870
Hr17	1153.850000	49.149905	0.00048499	0.00207254	Hr17	1146.190476	59.388230	0.00212280	0.00569972
Hr18	1128.550000	47.856666	0.00004485	0.00019166	Hr18	1121.428571	56.927648	0.00031556	0.00084728
Hr19	1108.100000	52.352952	0.00003577	0.00015286	Hr19	1100.380952	62.089030	0.00025759	0.00069163
Hr20	1145.950000	55.141421	0.00102157	0.00436554	Hr20	1137.000000	67.606952	0.00405259	0.01088122
Hr21	1084.200000	50.723814	0.00000244	1.0427E-05	Hr21	1075.809524	62.631158	0.00006278	0.00016856
Hr22	996.150000	33.223763	0.00000000	0.00000000	Hr22	991.809524	38.003446	0.00000000	0.00000000
Hr23	885.700000	24.783483	0.00000000	0.00000000	Hr23	884.142857	25.187866	0.00000000	0.00000000
Hr24	788.900000	22.365151	0.00000000	0.00000000	Hr24	787.952381	22.227182	0.00000000	0.00000000
Priority Peak Total			0.004720485		Priority Peak Total			0.01258869	

Holiday: Independence Day - July 4, 2005.

¹ Classify holidays in the same time-of-use periods as weekends (shifted to mid-peak and off-peak).

² Holidays are not differentiated from non-holiday weekdays.

Hawaiian Electric Company, Inc.
Comparison of Probability of Peak For Priority Peak Period Excluding Holidays and Including Holidays
August 2005 - Weekday

Priority Peak Excluding Holidays ¹					Priority Peak Including Holidays ²				
Aug-05	Avg Load (MW)	Standard Deviation	Prob of Peak For Each Hr	Relative Prob Peak	Aug-05	Avg Load (MW)	Standard Deviation	Prob of Peak For Each Hr	Relative Prob Peak
Days=23					Days=23				
Hr1	655.130435	12.588972	0.00000000	0.00000000	Hr1	655.130435	12.588972	0.00000000	0.00000000
Hr2	623.478261	11.464846	0.00000000	0.00000000	Hr2	623.478261	11.464846	0.00000000	0.00000000
Hr3	609.565217	11.750536	0.00000000	0.00000000	Hr3	609.565217	11.750536	0.00000000	0.00000000
Hr4	613.304348	12.174619	0.00000000	0.00000000	Hr4	613.304348	12.174619	0.00000000	0.00000000
Hr5	660.260870	16.504042	0.00000000	0.00000000	Hr5	660.260870	16.504042	0.00000000	0.00000000
Hr6	772.391304	21.417366	0.00000000	0.00000000	Hr6	772.391304	21.417366	0.00000000	0.00000000
Hr7	883.565217	17.954048	0.00000000	0.00000000	Hr7	883.565217	17.954048	0.00000000	0.00000000
Hr8	982.130435	15.568921	0.00000000	0.00000000	Hr8	982.130435	15.568921	0.00000000	0.00000000
Hr9	1051.695652	13.959144	0.00000000	0.00000000	Hr9	1051.695652	13.959144	0.00000000	0.00000000
Hr10	1088.086957	14.881083	0.00000000	0.00000000	Hr10	1088.086957	14.881083	0.00000000	0.00000000
Hr11	1102.000000	16.019874	0.00000000	0.00000000	Hr11	1102.000000	16.019874	0.00000000	0.00000000
Hr12	1107.913043	14.339751	0.00000000	0.00000000	Hr12	1107.913043	14.339751	0.00000000	0.00000000
Hr13	1111.086957	15.857069	0.00000000	0.00000000	Hr13	1111.086957	15.857069	0.00000000	0.00000000
Hr14	1108.043478	16.783320	0.00000000	0.00000000	Hr14	1108.043478	16.783320	0.00000000	0.00000000
Hr15	1103.434783	15.971071	0.00000000	0.00000000	Hr15	1103.434783	15.971071	0.00000000	0.00000000
Hr16	1093.869565	15.846721	0.00000000	0.00000000	Hr16	1093.869565	15.846721	0.00000000	0.00000000
Hr17	1074.739130	15.676321	0.00000000	0.00000000	Hr17	1074.739130	15.676321	0.00000000	0.00000000
Hr18	1052.217391	16.289864	0.00000000	0.00000000	Hr18	1052.217391	16.289864	0.00000000	0.00000000
Hr19	1058.652174	23.297695	0.00000000	0.00000000	Hr19	1058.652174	23.297695	0.00000000	0.00000000
Hr20	1072.565217	22.560678	0.00000000	0.00000000	Hr20	1072.565217	22.560678	0.00000000	0.00000000
Hr21	1007.521739	20.729578	0.00000000	0.00000000	Hr21	1007.521739	20.729578	0.00000000	0.00000000
Hr22	919.565217	14.484556	0.00000000	0.00000000	Hr22	919.565217	14.484556	0.00000000	0.00000000
Hr23	818.173913	13.316607	0.00000000	0.00000000	Hr23	818.173913	13.316607	0.00000000	0.00000000
Hr24	719.652174	13.220537	0.00000000	0.00000000	Hr24	719.652174	13.220537	0.00000000	0.00000000
Priority Peak Total			0.00000000		Priority Peak Total			0.00000000	

No observed holiday.

¹ Classify holidays in the same time-of-use periods as weekends (shifted to mid-peak and off-peak).

² Holidays are not differentiated from non-holiday weekdays.

Hawaiian Electric Company, Inc.
Comparison of Probability of Peak For Priority Peak Period Excluding Holidays and Including Holidays
September 2005 - Weekday

Priority Peak Excluding Holidays ¹					Priority Peak Including Holidays ²				
Sep-05	Avg Load (MW)	Standard Deviation	Prob of Peak For Each Hr	Relative Prob Peak	Sep-05	Avg Load (MW)	Standard Deviation	Prob of Peak For Each Hr	Relative Prob Peak
Days=21					Days=22				
Hr1	740.952381	12.913079	0.00000000	0.00000000	Hr1	742.000000	13.525989	0.00000000	0.00000000
Hr2	713.666667	12.606876	0.00000000	0.00000000	Hr2	714.500000	12.909022	0.00000000	0.00000000
Hr3	699.619048	12.595540	0.00000000	0.00000000	Hr3	700.272727	12.668603	0.00000000	0.00000000
Hr4	704.047619	11.723806	0.00000000	0.00000000	Hr4	704.454545	11.599373	0.00000000	0.00000000
Hr5	752.714286	12.186644	0.00000000	0.00000000	Hr5	751.545455	13.095718	0.00000000	0.00000000
Hr6	874.333333	13.169409	0.00000000	0.00000000	Hr6	869.454545	26.245593	0.00000000	0.00000000
Hr7	986.904762	15.400989	0.00000000	0.00000000	Hr7	979.136364	39.415123	0.00000000	0.00000000
Hr8	1056.095238	20.899533	0.00000000	0.00000000	Hr8	1048.909091	39.396530	0.00000000	0.00000000
Hr9	1136.142857	18.287388	0.00000000	0.00000000	Hr9	1129.363636	36.463348	0.00000015	4.21929E-07
Hr10	1179.476190	18.581225	0.00000000	0.00000000	Hr10	1173.500000	33.384841	0.00000984	2.76785E-05
Hr11	1203.238095	18.184897	0.00000000	0.00000000	Hr11	1197.181818	33.494330	0.00019452	0.000547158
Hr12	1213.952381	17.109869	0.00000000	0.00000000	Hr12	1208.090909	32.166100	0.00039719	0.00111724
Hr13	1224.666667	20.725186	0.00000524	2.3512E-05	Hr13	1217.681818	38.502178	0.00533117	0.014995835
Hr14	1225.380952	24.446832	0.00010496	0.00047096	Hr14	1217.772727	42.926218	0.01106056	0.031111807
Hr15	1224.666667	24.376902	0.00008958	0.00040195	Hr15	1217.136364	42.584700	0.01012788	0.028488309
Hr16	1210.333333	29.592792	0.00017802	0.00079878	Hr16	1203.590909	42.827071	0.00433601	0.012196589
Hr17	1185.333333	30.543957	0.00000943	4.23127E-05	Hr17	1180.500000	37.449331	0.00014832	0.000417203
Hr18	1173.761905	37.809926	0.00008431	0.00037830	Hr18	1170.181818	40.539970	0.00016102	0.000452927
Hr19	1235.190476	54.161443	0.06784800	0.30443611	Hr19	1231.181818	56.100791	0.06528102	0.183626372
Hr20	1190.809524	42.501317	0.00161182	0.00723229	Hr20	1188.909091	42.424060	0.00136896	0.003850693
Hr21	1109.380952	35.616676	0.00000000	0.00000000	Hr21	1107.636364	35.708536	0.00000000	0.00000000
Hr22	1008.571429	24.941073	0.00000000	0.00000000	Hr22	1007.136364	25.253563	0.00000000	0.00000000
Hr23	892.095238	20.275366	0.00000000	0.00000000	Hr23	890.818182	20.673508	0.00000000	0.00000000
Hr24	798.666667	18.477915	0.00000000	0.00000000	Hr24	797.727273	18.563102	0.00000000	0.00000000
Priority Peak Total			0.31204670		Priority Peak Total			0.18792999	

Holiday: Labor Day - September 5, 2005.

¹ Classify holidays in the same time-of-use periods as weekends (shifted to mid-peak and off-peak).

² Holidays are not differentiated from non-holiday weekdays.

Hawaiian Electric Company, Inc.
Comparison of Probability of Peak For Priority Peak Period Excluding Holidays and Including Holidays
October 2005 - Weekday

Priority Peak Excluding Holidays ¹					Priority Peak Including Holidays ²				
Oct-05	Avg Load (MW)	Standard Deviation	Prob of Peak For Each Hr	Relative Prob Peak	Oct-05	Avg Load (MW)	Standard Deviation	Prob of Peak For Each Hr	Relative Prob Peak
Days=21					Days=21				
Hr1	726.142857	17.344410	0.00000000	0.00000000	Hr1	726.142857	17.344410	0.00000000	0.00000000
Hr2	700.761905	15.933941	0.00000000	0.00000000	Hr2	700.761905	15.933941	0.00000000	0.00000000
Hr3	688.238095	15.326137	0.00000000	0.00000000	Hr3	688.238095	15.326137	0.00000000	0.00000000
Hr4	693.000000	14.491377	0.00000000	0.00000000	Hr4	693.000000	14.491377	0.00000000	0.00000000
Hr5	738.190476	17.614253	0.00000000	0.00000000	Hr5	738.190476	17.614253	0.00000000	0.00000000
Hr6	855.571429	23.745676	0.00000000	0.00000000	Hr6	855.571429	23.745676	0.00000000	0.00000000
Hr7	970.571429	29.723007	0.00000000	0.00000000	Hr7	970.571429	29.723007	0.00000000	0.00000000
Hr8	1043.523810	25.533545	0.00000000	0.00000000	Hr8	1043.523810	25.533545	0.00000000	0.00000000
Hr9	1121.809524	23.848730	0.00000000	0.00000000	Hr9	1121.809524	23.848730	0.00000000	0.00000000
Hr10	1170.476190	25.350777	0.00000000	0.00000000	Hr10	1170.476190	25.350777	0.00000000	0.00000000
Hr11	1196.666667	27.744068	0.00000849	3.80949E-05	Hr11	1196.666667	27.744068	0.00000849	2.27957E-05
Hr12	1209.380952	28.208999	0.00007854	0.00035241	Hr12	1209.380952	28.208999	0.00007854	0.00021088
Hr13	1214.666667	25.987176	0.00004822	0.00021636	Hr13	1214.666667	25.987176	0.00004822	0.00012947
Hr14	1210.904762	27.374997	0.00006174	0.00027703	Hr14	1210.904762	27.374997	0.00006174	0.00016577
Hr15	1203.904762	30.318154	0.00010895	0.00048886	Hr15	1203.904762	30.318154	0.00010895	0.00029253
Hr16	1191.333333	28.998851	0.00000858	3.84987E-05	Hr16	1191.333333	28.998851	0.00000858	0.00002304
Hr17	1168.238095	25.256494	0.00000000	0.00000000	Hr17	1168.238095	25.256494	0.00000000	0.00000000
Hr18	1189.571429	36.183659	0.00023785	0.00106724	Hr18	1189.571429	36.183659	0.00023785	0.00063863
Hr19	1237.523810	46.206730	0.04471884	0.20065484	Hr19	1237.523810	46.206730	0.04471884	0.12007021
Hr20	1165.857143	43.361603	0.00026752	0.00120037	Hr20	1165.857143	43.361603	0.00026752	0.00071829
Hr21	1082.571429	33.375997	0.00000000	0.00000000	Hr21	1082.571429	33.375997	0.00000000	0.00000000
Hr22	080.285714	21.755787	0.00000000	0.00000000	Hr22	080.285714	21.755787	0.00000000	0.00000000

Hr23	867.000000	20.184152	0.00000000	0.00000000	Hr23	867.000000	20.184152	0.00000000	0.00000000
Hr24	776.857143	17.286659	0.00000000	0.00000000	Hr24	776.857143	17.286659	0.00000000	0.00000000
Priority Peak Total				0.20292245	Priority Peak Total				0.12142713

Hawaiian Electric Company, Inc.
Comparison of Probability of Peak For Priority Peak Period Excluding Holidays and Including Holidays
November 2005 - Weekday

Priority Peak Excluding Holidays ¹					Priority Peak Including Holidays ²				
Nov-05	Avg Load (MW)	Standard Deviation	Prob of Peak For Each Hr	Relative Prob Peak	Nov-05	Avg Load (MW)	Standard Deviation	Prob of Peak For Each Hr	Relative Prob Peak
Days=21					Days=22				
Hr1	697.238095	22.160561	0.00000000	0.00000000	Hr1	697.409091	21.641361	0.00000000	0.00000000
Hr2	674.650000	20.686316	0.00000000	0.00000000	Hr2	674.476190	20.178253	0.00000000	0.00000000
Hr3	663.100000	19.506814	0.00000000	0.00000000	Hr3	662.619048	19.140209	0.00000000	0.00000000
Hr4	669.750000	19.141784	0.00000000	0.00000000	Hr4	668.809524	19.148418	0.00000000	0.00000000
Hr5	714.900000	21.727741	0.00000000	0.00000000	Hr5	712.666667	23.520913	0.00000000	0.00000000
Hr6	833.050000	27.250253	0.00000000	0.00000000	Hr6	826.952381	38.551882	0.00000000	0.00000000
Hr7	955.200000	37.289197	0.00000000	0.00000000	Hr7	945.571429	57.165174	0.00000000	0.00000000
Hr8	1005.050000	41.713907	0.00000000	0.00000000	Hr8	997.714286	52.755230	0.00000000	0.00000000
Hr9	1078.900000	47.051931	0.00000023	1.03202E-06	Hr9	1073.333333	52.477932	0.00000188	5.28818E-06
Hr10	1125.300000	51.431201	0.00010451	0.00046894	Hr10	1121.285714	53.397699	0.00013292	0.00037389
Hr11	1145.950000	54.838975	0.00096468	0.00432855	Hr11	1142.666667	55.527771	0.00089947	0.00253008
Hr12	1150.750000	58.060653	0.00221249	0.00992751	Hr12	1147.190476	58.894498	0.00207648	0.00584085
Hr13	1157.250000	58.672037	0.00340784	0.01529109	Hr13	1152.190476	61.707876	0.00397016	0.01116750
Hr14	1154.850000	60.044085	0.00363886	0.01632768	Hr14	1148.809524	64.739956	0.00490447	0.01379559
Hr15	1149.250000	60.756524	0.00302959	0.01359387	Hr15	1142.523810	66.759733	0.00468139	0.01316809
Hr16	1137.700000	58.815590	0.00121667	0.00545924	Hr16	1130.809524	65.447398	0.00233025	0.00655467
Hr17	1117.050000	52.135931	0.00006782	0.00030431	Hr17	1110.047619	60.099481	0.00030530	0.00085877
Hr18	1187.450000	45.798730	0.00250145	0.01122408	Hr18	1177.809524	62.804155	0.01389140	0.03907456
Hr19	1211.300000	51.637502	0.02130074	0.09557709	Hr19	1199.761905	72.998565	0.05565484	0.15654928
Hr20	1134.000000	45.974821	0.00003768	0.00016907	Hr20	1124.666667	61.946213	0.00100517	0.00282740
Hr21	1047.600000	38.463106	0.00000000	0.00000000	Hr21	1041.095238	47.895621	0.00000000	0.00000000
Hr22	946.300000	33.578032	0.00000000	0.00000000	Hr22	943.238095	35.608854	0.00000000	0.00000000
Hr23	833.000000	30.288090	0.00000000	0.00000000	Hr23	831.761905	30.061445	0.00000000	0.00000000
Hr24	745.000000	26.706987	0.00000000	0.00000000	Hr24	744.142857	26.325436	0.00000000	0.00000000
Priority Peak Total				0.10697025					0.19845124

Holiday: Thanksgiving Day - November 24, 2005.

- ¹ Classify holidays in the same time-of-use periods as weekends (shifted to mid-peak and off-peak).
² Holidays are not differentiated from non-holiday weekdays.

Hawaiian Electric Company, Inc.
Comparison of Probability of Peak For Priority Peak Period Excluding Holidays and Including Holidays
December 2005 - Weekday

Priority Peak Excluding Holidays ¹					Priority Peak Including Holidays ¹				
Dec-05	Avg Load (MW)	Standard Deviation	Prob of Peak For Each Hr	Relative Prob Peak	Dec-05	Avg Load (MW)	Standard Deviation	Prob of Peak For Each Hr	Relative Prob Peak
Days=21					Days=22				
Hr1	682.238095	15.962158	0.00000000	0.00000000	Hr1	680.863636	16.858784	0.00000000	0.00000000
Hr2	654.904762	12.340603	0.00000000	0.00000000	Hr2	653.772727	13.161748	0.00000000	0.00000000
Hr3	642.761905	9.674217	0.00000000	0.00000000	Hr3	641.772727	10.519514	0.00000000	0.00000000
Hr4	646.380952	8.552638	0.00000000	0.00000000	Hr4	645.545455	9.220718	0.00000000	0.00000000
Hr5	681.857143	14.660442	0.00000000	0.00000000	Hr5	680.954545	14.920351	0.00000000	0.00000000
Hr6	775.952381	42.450531	0.00000000	0.00000000	Hr6	774.272727	42.169930	0.00000000	0.00000000
Hr7	887.095238	76.816603	0.00000001	4.48703E-08	Hr7	884.590909	75.880018	0.00000001	2.81286E-08
Hr8	934.904762	67.247977	0.00000001	4.48703E-08	Hr8	933.454545	65.978876	0.00000000	0.00000000
Hr9	1010.476190	63.220740	0.00000067	3.00631E-06	Hr9	1009.045455	62.061012	0.00000038	1.06889E-06
Hr10	1061.476190	58.424840	0.00000661	2.96593E-05	Hr10	1060.136364	57.362088	0.00000409	1.15046E-05
Hr11	1080.714286	57.156927	0.00001923	8.62856E-05	Hr11	1079.272727	56.187765	0.00001259	3.54139E-05
Hr12	1082.761905	58.437064	0.00003286	0.00014744	Hr12	1081.409091	57.380650	0.00002172	6.10953E-05
Hr13	1081.047619	60.780323	0.00005541	0.00024863	Hr13	1079.681818	59.660457	0.00003731	0.000104948
Hr14	1078.095238	62.157787	0.00006474	0.00029049	Hr14	1076.090909	61.383966	0.00004647	0.000130714
Hr15	1073.333333	61.566495	0.00004048	0.00018164	Hr15	1071.272727	60.855161	0.00002892	8.13479E-05
Hr16	1069.523810	57.249995	0.00000834	3.74218E-05	Hr16	1067.500000	56.670938	0.00000580	1.63146E-05
Hr17	1064.714286	54.527188	0.00000203	9.10867E-06	Hr17	1063.500000	53.517020	0.00000119	3.3473E-06
Hr18	1129.809524	74.137453	0.00601228	0.02697729	Hr18	1129.909091	72.352253	0.00505546	0.014220301
Hr19	1165.714286	73.893939	0.02098573	0.09416363	Hr19	1165.954545	72.121906	0.01874250	0.052720029
Hr20	1093.476190	61.915765	0.00016283	0.00073062	Hr20	1093.272727	60.431135	0.00011407	0.000320863
Hr21	1022.571429	48.987316	0.00000000	0.00000000	Hr21	1021.818182	47.937098	0.00000000	0.00000000
Hr22	939.380952	28.510483	0.00000000	0.00000000	Hr22	938.500000	28.128532	0.00000000	0.00000000
Hr23	829.904762	20.121890	0.00000000	0.00000000	Hr23	829.227273	19.892405	0.00000000	0.00000000
Hr24	739.095238	21.205907	0.00000000	0.00000000	Hr24	738.500000	20.882323	0.00000000	0.00000000
Priority Peak Total			0.12187154		Priority Peak Total			0.06726119	

Holiday: Christmas - December 26, 2005.

¹Classify holidays in the same time-of-use periods as weekends (shifted to mid-peak and off-peak).
Holidays are not differentiated from non-holiday weekdays.

CA-IR-472

Ref: HECO 2234 System Peak Generation

The peak demand data displayed on pages 2 and 3 indicate that monthly peak demands during the summer months tend to occur during the early afternoon hours during weekdays, while peaks occur in the early evening in all non-summer months. Please respond to the following:

- a. Please confirm this understanding and explain why this pattern is thought to exist.
- b. Describe how this pattern of peak demand was considered and influenced the Company's selection of the Average and Excess method of allocation of production and transmission demand-related costs (see T-22, at pages 12-14).
- c. Why does the "Mid-Peak Period" for TOU-R and TOU-C proposed pricing include 7:00 a.m. to 5:00 p.m. period Monday through Friday during the summer months, when the timing of summer month peaks before 5:00 p.m. suggests that "Priority Peak Period" pricing would be more applicable?

HECO Response:

- a. The recorded system peak data for 1999 through 2003 provided in HECO-2234 indicate that the system peaks during the summer months occur during the early afternoon hours, while the system peaks during the non-summer months occur during early evening hours.

Furthermore, the system peaks for all months from 1999 to 2003, occur during the weekdays most often on Mondays or Tuesdays of the week. Additionally, the highest monthly peaks for each year (annual system peaks) occur in the early evening hours during the non-summer months.

The reason for this pattern may be gleaned from the results of the 2003 HECO Class Load Study which indicate that the residential class is the largest contributor to the annual system peak, while the large commercial classes (schedules J and PP) are the largest contributor to the day peak. (See Table 4.1 of the 2003 HECO Class Load Study report

system peaks during the non-summer months are heavily influenced by the residential waterheating loads, lighting loads, and the increasing residential air-conditioning loads. On the other hand, the system peaks during the summer months are heavily influenced by the commercial loads – which most likely also include air conditioning and lighting loads.

- b. HECO's use of the Average-Excess Demand (AED) method has proven to be reasonable in allocating the Company's production and transmission demand costs, given HECO's load characteristics with relatively high load factor, low seasonality, and broad peak periods. As indicated in the monthly system peak data provided in HECO-2234, there are no pronounced differences between the monthly system peaks. The system's fairly broad peak load generally occurs from 7:00 a.m. to 9:00 p.m. as graphically depicted in the 2003 HECO

Clean Load Study, Exhibit A 5a through Exhibit A 5i, Exhibit A 7a through Exhibit A 7i, and

CA-IR-473

Ref: Response to CA-IR-222 (2003 Class Load Study).

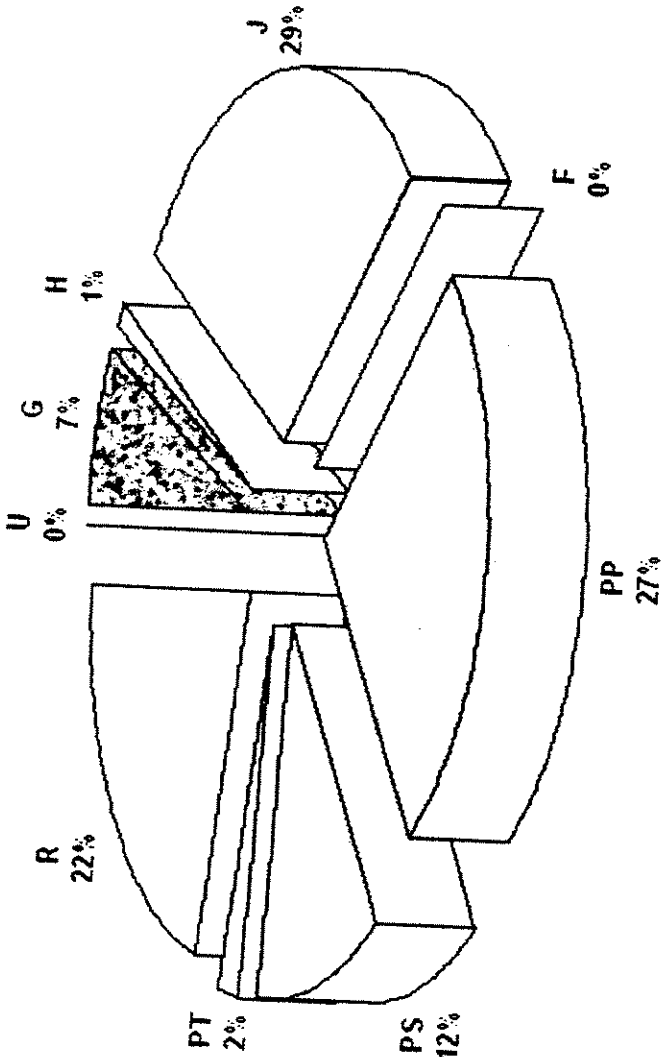
It appears that the pie charts on Exhibits 4.1 and 4.2 are based on the data from Table 4.1 that should be interchanged. Please confirm or clarify.

HECO Response:

The pie chart on Exhibit 4.1 represents the Class Contribution to the Day Peak, and the pie chart on Exhibit 4.2 represents the Class Contribution to the System Peak. The data on the class contributions to the class peak and to the system peak is provided in Table 4.1. The corrected pie charts are attached as pages 2 and 3 of this response.

Revised 4-12-05

Exhibit 4.1 *Day*
CLASS CONTRIBUTIONS TO THE SYSTEM PEAK

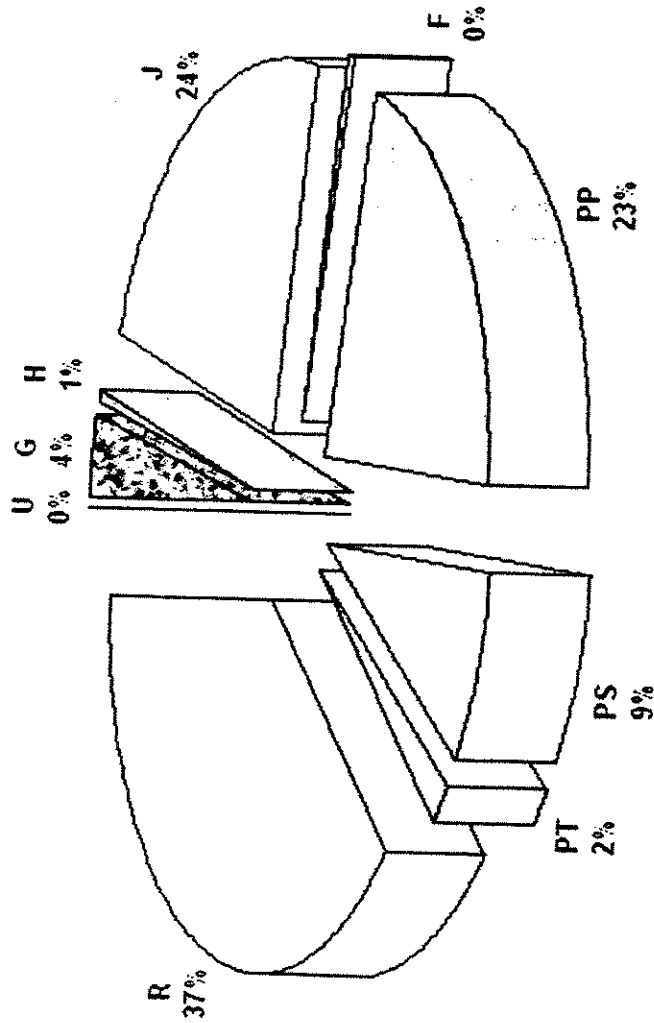


The instantaneous system peak of 1,284 MW occurred on 10/25/03 @ 18:42.

Hawaiian Electric Company, Inc.

Revised 4-12-05

Exhibit 4.2 *System*
CLASS CONTRIBUTIONS TO THE DAY PEAK



The instantaneous day peak of 1,256 MW occurred on 7/25/03 @ 14:06.

Hawaiian Electric Company, Inc.

2003 Class Load Study

CA-IR-474

Ref: Response to CA-IR-222 (2003 Class Load Study), page 16.

Please explain why the sample for class E, Electric Service for Employees, so much larger, proportionally, than the other residential categories.

HECO Response:

[REDACTED]

Table 2.1
HECO 2003 Class Load Study Sample Design

<i>Rate</i>	<i>MWh/Mo</i>	<i>er</i>	<i>Population</i>	<i>mv90</i>	<i>Random</i>	<i>Total</i>
	(A)	(B)	(C)	(D)	(E)	(D+E)
E	1,629	0.30	2,007	0	25	25
G	29,031	0.60	26,623	0	95	95
H	8,823	0.44	2,404	0	50	50
JS	132,274	0.47	5,906	90	50	140
JP	17,194	0.27	151	21	10	31
JT	347	na	2	0	2	2
PS	67,630	0.14	183	84	5	89
PP	171,044	0.14	172	84	5	89
PT	14,097	na	4	0	4	4
RE	100,046	0.32	150,783	0	30	30
RN	20,498	0.25	47,021	0	15	15
RS	35,606	0.29	42,857	0	25	25
Total	598,219		278,113	279	316	595

(A) MWh/Mo = Megawatts hours per month, the average total energy used by the rate class each month in 2000, from billing histories for the accounts active at the end of the year 2000.

(B) Error ratio = The quotient of 1) the standard error of the average squared residual obtained from regressing average hourly demand on annual energy and 2) the average hourly demand. For this sample design it was computed for the rate class' average contribution to the 12 monthly system peaks, but it can be computed for any hour of the year. The error ratio is adjusted for the degree of heteroscedasticity in the residuals, using this equation (from page 10 of the HECO 2003 Class Load Study):

$$\hat{er} = \frac{\sqrt{\left(\sum_{i=1}^n w_i e_i^2 / x_i^2 \right) \left(\sum_{i=1}^n w_i x_i^2 \right)}}{\sum_{i=1}^n w_i y_i}$$

This equation was solved iteratively by the Model Based Statistical Sampling FORTRAN programs developed by RLW Analytics, Inc., the firm responsible for the sample design, using hourly demand data from the 1997-98 HECO Class Load Study sample.

(C) Population = The number of accounts in the rate class at the end of the year 2000, obtained from billing records.

(D) mv90 = The number of accounts in the rate class connected to the automated reading system at the time of the sample design.

(E) Random = The number of accounts chosen at random from among the accounts in the rate class not connected to the automated reading system. This number, n, is derived as follows:

Let:

s = the standard error of the average squared residual obtained from regressing the average contribution to the 12 system peaks on annual energy;

x = the average contribution to the 12 system peaks;

CI = the size of the 90% confidence interval for the estimate of the average

to the 12 system peaks;

rp = the relative precision of the estimate of the average contribution to the 12 system peaks (required by PURPA to be at least 10%); and,

Z = the ordinate of the normal distribution for a 90% confidence interval.

By definition:

$$er = s/x;$$

$$CI = Z * s/n^{1/2}; \text{ and,}$$

$$rp = CI/x.$$

Therefore:

$$\begin{aligned} rp &= Z * sd / x n^{1/2} \\ &= (Z/n^{1/2}) * (s/x) \end{aligned}$$

$$n = (Z * er / rp)^2$$

This formula appears on page 12 of the HECO 2003 Class Load Study report as

$$n = \left(\frac{1.645 \text{ } er}{rp} \right)^2$$

For example, the error ratio for Rate E was 0.30. Given a required precision of 10% (0.10) and a Z of 1.645 (for a 90% confidence interval),

$$n = (1.645 * 0.30 / 0.10)^2 = 24.4.$$

The sample size n for each rate class was then rounded up to the nearest multiple of 5, except for rates JT and PT, because all six customers in those two rate classes were included in the study.

The resulting samples were sufficiently accurate to meet the PURPA standard of $\pm 10\%$ precision at the 90% confidence interval, as shown in the "Precision of the HECO 2003 Class Load Study Sample" attached as page 5.

Precision of the HECO 2003 Class Load Study Sample

Percentage Difference in the Average Monthly kWh between the Sample and the Population, by Rate Class

Month	Rate	E	RE	RN	RS	R+E	G	H	JS	JP	JT	All J	PS	PP	PT	All P
Jan		0%	0%	1%	-4%	0%	2%	-1%	3%	6%	NA	3%	1%	0%	NA	0%
Feb		7%	5%	4%	-7%	2%	-4%	-7%	-3%	-7%		-4%	-5%	0%		-2%
Mar		5%	2%	4%	2%	3%	-1%	-1%	-1%	-4%		-2%	1%	2%		1%
Apr		-2%	2%	2%	1%	1%	-3%	1%	2%	-16%		-2%	-3%	2%		1%
May		5%	4%	5%	-5%	2%	-1%	2%	3%	9%		3%	-2%	3%		1%
Jun		-2%	3%	9%	-4%	0%	0%	3%	-3%	3%		-3%	-1%	1%		0%
Jul		-4%	5%	10%	11%	6%	3%	4%	3%	0%		2%	-2%	3%		1%
Aug		-4%	-2%	1%	3%	-3%	1%	-1%	0%	-3%		-1%	-5%	3%		-1%
Sep		-3%	-4%	-8%	-3%	-4%	4%	-1%	1%	1%		1%	0%	1%		0%
Oct		-2%	-4%	-6%	5%	-2%	3%	0%	2%	-3%		1%	-3%	3%		0%
Nov		-1%	-7%	-10%	1%	-3%	-4%	-4%	-2%	-5%		-2%	-5%	1%		-1%
Dec		6%	-3%	2%	0%	-2%	0%	-2%	3%	-3%		2%	1%	3%		1%
Average		0.2%	0.0%	1.0%	0.0%	0.0%	-0.1%	-0.3%	0.8%	-2.1%	0	-0.1%	-1.9%	1.9%	0	0.0%

NA = Not Applicable, because all accounts in the rate class were in the study.

CA-IR-475

Ref: HECO T-8, pages 11 & 18-20 (T&D – Work Requirements).

At page 11, the description of the direct labor budget process indicates that the “standard unit of measurement in T&D ... is a man-hour” and that “labor requirements are estimated in man-hours.” At page 19, the discussion of the proposed T&D staffing increase refers to “increased system requirements” as a result of the continuing growth and age of the utility plant, employee retirements and new projects. Please provide the following:

- a. How were “system requirements” measured and quantified for purposes of preparing the test year forecast and determining increased staffing levels? Please explain and provide copies of any supporting documentation.
- b. Referring to item (a) above, were “system requirements” determined first, then matched with the number of man-hours required to do the work, and finally translated into employee counts? Please explain and provide copies of any supporting documentation.
- c. How was the number of increased employees (i.e., 16 - Construction & Maintenance; 14 – System Operation) determined? Please explain and provide copies of any supporting documentation.

HECO Response:

- a. In Construction and Maintenance (C&M) department, system requirements are reflected in designated programs which are based on historical trends. Please refer to CA-IR-64 for descriptions and costs associated with these programs.

Equipment-related planned work schedules, number of units (existing and additional) and frequency of maintenance are factors that form the basis of system requirements for most of the divisions of System Operation as shown in HECO T-8, CA-IR-1, Attachment K.

- b. In general, for C&M and System Operation, the system requirements are determined first and then matched with the number of man hours required to do the work. The division forecasts include hours for 1) scheduled equipment maintenance (predictive/preventive), 2) equipment failures (corrective), and 3) capital work, which are then compared to the estimated supply. Please refer to CA-IR-245 for further discussion on resource leveling.

- c. The increases in the C&M department were to accommodate succession planning and to ensure adequate 24/7 shift coverage by Primary Troublemakers (PTM's). Please refer to CA-IR-68 for further discussion on PTM's.

For the System Operation department, refer to HECO T-8, CA-IR-1 for further documentation regarding the increase in staffing. Please note that the vacancies listed in the table in Attachment K, item d, pages 2 and 3 are correct as shown. The numbers indicated in the verbiage should correctly read "...there were 10 vacancies to be filled by year-end 2004.... There were also 3 and 3 additional positions budgeted for mid-2004 and 2005 respectively...".

CA-IR-476

Ref: HECO T-8, pages 11 & 18-20 (T&D – Work Requirements).

At page 11, the description of the direct labor budget process indicates that the “standard unit of measurement in T&D ... is a man-hour” and that “labor requirements are estimated in man-hours.” At page 19, the discussion of the proposed T&D staffing increase refers to “increased system requirements” as a result of the continuing growth and age of the utility plant, employee retirements and new projects. Please provide the following:

a. How has the overall level of “system requirements” for the 2005 test year forecast changed

in relation to recent actual experience? Please explain.

b. Please provide comparable “system requirements” for calendar years 2003, 2004 and 2005 – noting whether the data represents actual or forecast levels.

HECO Response:

a. The change in overall level of system requirements resulted in increased man-hours and level of excess demand as it relates to both capital and O&M. Please refer to CA-IR 245 for further discussion on resource leveling.

b. As indicated in CA-IR 245, for C&M, the actual hours for 2003 and 2004 were 427,905 and 463,934 respectively and the 2005 estimate is 503,755. For System Operation the actual

hours for 2003 and 2004 were 187,529 and 187,378 respectively and the 2005 estimate is 276,487.

CA-IR-477

Ref: HECO T-8, pages 11 & 18-20 (T&D – Work Requirements).

At page 11, the description of the direct labor budget process indicates that the “standard unit of measurement in T&D ... is a man-hour” and that “labor requirements are estimated in man-hours.” At page 19, the discussion of the proposed T&D staffing increase refers to “increased system requirements” as a result of the continuing growth and age of the utility plant, employee retirements and new projects. Please provide the following:

- a. Does the increase in employees (i.e., 16 – Construction and Maintenance; 14 – System Operation) reduce the need for overtime during the 2005 forecast test year? Please explain and provide a copy of any supporting documentation.
- b. Please provide a comparison of the T&D straight time and overtime hours included in the 2005 test year forecast with historical levels in calendar years 2001 through 2004.
- c. If the responses to items (a) and (b) above indicate that the addition of employees in the test year forecast has not reduced overtime requirements, please provide a detailed explanation (and copies of any supporting documentation) addressing why overtime levels are not expected to decline as a result of adding 30 T&D employees.

HECO Response:

- a. No, the increase in employees will not necessarily reduce the need for overtime during the 2005 test year estimate. The forecast overtime rate for the Construction and Maintenance Department (C&M) is lower than the experienced rate in recent years, but the actual overtime rate to date is higher than the forecast. The forecast overtime rate for the System Operation Department (SOD) is higher than in recent years. Please see our response to part c. below for an explanation.
- b. Please refer to page 4 for a comparison of straight time and overtime hours included in the 2005 test year estimate, and the historical levels from 2000 – 2004. We have included straight time and overtime hours for only the C&M and System Operation Departments, as these are the two areas that are primarily responsible for O&M expenses.
- c. For the System Operation Department (SOD), as shown on page 4, even with the expected

addition of 14 employees the OT rate is expected to increase to 24% in 2005. The primary reason for this increase is the higher level of Demand for labor resources. Please refer to CA-IR-245, Attachment A for the Resource Leveling Report for SOD for 2005. This report shows the projected resource Supply (including the 14 additional employees) and the forecasted Demand (both O&M and capital). As shown on page 13 of 13, the overall result is an under supply of labor of 53,517 hours.

For the Construction and Maintenance Department (C&M), as shown on page 4, the OT rate for 2005 is forecasted at 10%. Please also refer to CA-IR-245, Attachment A for the Resource Leveling Report for C&M for 2005. The 10% OT rate is based only on a comparison of Supply vs. Demand and does not take into account other factors. As shown, on page 4, the actual OT incurred to date (5/15/05), is 18%. One of the primary reasons for the actual OT exceeding the forecasted, even with the increase of 16 employees is that the increase in staffing is to account for the loss of technical knowledge and experience through retirements, as mentioned in our testimony, HECO T-8 pages 19 and 20 of 22. Due to the projected retirements over the next three to five years, productivity levels will be somewhat lower, while training requirements will be increasing. This is due to the fact that it takes approximately five years to become a journey line worker. Another primary factor is that OT is incurred to respond to work outside of the normal business hours. This work includes responding to: 1) system outages due to equipment deterioration/failure, 2) outages/damage due to outside parties (vehicle accidents, objects in the lines, 3) weather related problems (storms, high winds), 4) Customer electrical service problems, 5) work on Commercial services to not impact their business, and 6) work to meet Customer schedules. These instances of OT are a necessary part of providing electrical service and cannot be easily

forecasted by comparing Supply vs. Demand.

Construction & Maintenance

	<u>Actual</u>				<u>Projected</u>	<u>Actual</u>
	2001	2002	2003	2004	2005	2005
Straight time	368,472	360,463	364,395	366,565	459,680	149,532
Overtime	63,737	51,087	63,510	97,368	44,075	26,234
Actual OT % *	17%	14%	17%	27%	10%	18% **

* Actual OT % = Overtime hours / Productive Straight Time hours

** Actual OT % through 5/15/05.

System Operation

	<u>Actual</u>				<u>Projected</u>	<u>Actual</u>
	2001	2002	2003	2004	2005	2005
Straight Time	187,484	184,954	175,728	172,126	222,970	72,009
Overtime	9,909	12,085	11,801	15,251	53,517	7,727
OT % *	5%	7%	7%	9%	24%	11% **

* Actual OT % = Overtime hours / Productive Straight Time hours

** Actual OT % through 5/15/05.

CA-IR-478

Ref: HECO T-8, pages 11 & 18-20 (T&D – Work Requirements).

At page 11, the description of the direct labor budget process indicates that the “standard unit of measurement in T&D ... is a man-hour” and that “labor requirements are estimated in man-hours.” At page 19, the discussion of the proposed T&D staffing increase refers to “increased system requirements” as a result of the continuing growth and age of the utility plant, employee retirements and new projects. Please provide the following:

- a. Does the increase in employees (i.e., 16 – Construction and Maintenance; 14 – System Operation) reduce the need for reliance on contract labor during the 2005 forecast test year? Please explain and provide a copy of any supporting documentation.
- b. Please provide a comparison of the T&D contract labor costs included in the 2005 nonlabor test year forecast with historical levels in calendar years 2001 through 2004.

HECO Response:

- a. No, the increase in employees does not reduce the need for HECO’s reliance on contract labor during the 2005 test year forecast. In the Construction and Maintenance (C&M) and System Operation departments, the majority of the contract labor forecasted represents work that is not performed by internal labor. Examples of contract labor include, but are not limited to, hazardous waste disposal, traffic control, pole-hole digging and vegetation management.

Additional contract labor may be incurred during 2005, as the decision to contract a project is not always made at the time the forecast is created. Some of the work to be performed on projects is forecasted to be done with internal labor, but once the project is scheduled to proceed, labor demands will be reviewed and the use of contract labor will be determined at that point.

- b. Please refer to CA-IR-248 for comparison of T&D contract costs included in the 2005 test year estimate and the historical levels for 2001 through 2004.

CA-IR-479

Ref: HECO T-8, pages 18-20 & HECO-826 (T&D Retirements).

At page 19, the discussion of the proposed T&D staffing increase refers to “increased system requirements” as a result of the continuing growth and age of the utility plant, employee retirements and new projects. HECO-826 provides information regarding T&D employee retirement eligibility. Please provide the following:

- a. For Construction & Maintenance, please provide the following:
 1. The number of employees eligible to retire in 2003 that actually retired in 2003.
 2. The number of employees eligible to retire in 2004 that actually retired in 2004.
 3. The number of employees eligible to retire in 2005 that the Company expects will retire in 2005, indicating whether such expected retirements were reflected in the 2005 test year forecast.
 4. The number of employees eligible to retire in 2006 that the Company expects will retire in 2006.
- b. For System Operations, please provide the following:
 1. The number of employees eligible to retire in 2003 that actually retired in 2003.
 2. The number of employees eligible to retire in 2004 that actually retired in 2004.
 3. The number of employees eligible to retire in 2005 that the Company expects will retire in 2005, indicating whether such expected retirements were reflected in the 2005 test year forecast.
 4. The number of employees eligible to retire in 2006 that the Company expects will retire in 2006.

HECO Response:

- a. Please refer to the following for the number of employees eligible for retirement in the Construction & Maintenance department.
 1. There were 21 employees eligible for nominal retirement, 20 employees eligible for early retirement and 18 employees eligible for full retirement during 2003. During 2003, 1 employee was eligible for nominal retirement, 2 employees were eligible for

early retirement, and 9 employees were eligible for full retirement actually retired.

2. There were 23 employees eligible for nominal retirement, 18 employees eligible for early retirement and 15 employees eligible for full retirement during 2004. During 2004, 4 employees eligible for full retirement actually retired.

3. There are projected to be 25 employees eligible for nominal retirement, 17 employees eligible for early retirement and 14 employees eligible for full retirement during 2005.

The test year forecast was prepared with the expectation that 5 of the employees eligible for full retirement would retire.

4. There are projected to be 31 employees eligible for nominal retirement, 12 employees eligible for early retirement and 20 employees eligible for full retirement during 2006, assuming there are 5 retirements in 2005. The current expectation is that there will be an additional 9 retirements (2 early and 7 full) in 2006.

- b. Please refer to the following for the number of employees eligible for retirement in the System Operation department.

1. There were 16 employees eligible for nominal retirement, 9 employees eligible for early retirement and 7 employees eligible for full retirement during 2003. During 2003, 3 employees eligible for early retirement and 3 employees eligible for full retirement actually retired.

2. There were 24 employees eligible for nominal retirement, 6 employees eligible for early retirement and 3 employees eligible for full retirement during 2004. During 2004, 2 employees eligible for early retirement and 1 employee eligible for full retirement actually retired.

3. There are projected to be 19 employees eligible for nominal retirement, 9 employees

eligible for early retirement and 3 employees eligible for full retirement during 2005.

The test year forecast was prepared with the expectation that 3 employees (1 early and 2 full) would retire. As of May 31, 2005, 2 employees have actually retired (1 early and 1 full).

4. There are projected to be 21 employees eligible for nominal retirement, 5 employees eligible for early retirement and 4 employees eligible for full retirement during 2006, assuming there are 3 retirements in 2005. The current expectation is that there will be 6 retirements (1 nominal, 3 early and 2 full) in 2006.

CA-IR-480

Ref: HECO T-8, pages 12-14 (T&D O&M Increases).

The referenced pages discuss aging T&D plant as contributing to the increase in T&D O&M expenses. Please provide the following:

- a. State whether or not aging T&D plant has directly caused or materially contributed to actual increases in T&D O&M expenses, providing estimates of the magnitude of change occurring in each year since 1995.
- b. Please provide a copy of all studies, analyses, reports or other documents supporting the response to item (a) above.

HECO Response:

- a. Aging T&D plant affects the amount of maintenance, repair and replacement work on the system, whether the costs are charged to Capital or O&M expense. Please refer to HECO 813 – 816 for an illustration of the aging of components of the T&D system. The overall growth in O&M expenses since 1985 is shown on HECO-823. See also our response to CA-IR-64, relating to T&D Plant Aging, as reflected in our Program costs shown on Attachment A. HECO has not attempted to calculate the amount of the increase attributable only to aging T&D plant, and therefore, we are unable to provide any estimate on the magnitude of the change. The increase in O&M is due to a number of factors, in combination, as stated in our testimony and the effect of only one factor, in isolation, has not been calculated.
- b. Not applicable.

CA-IR-481

Ref: HECO T-8, pages 12 & 14-15 (T&D O&M Increases).

The referenced pages discuss growth in T&D plant as contributing to the increase in T&D O&M expenses. Please provide the following:

- a. State whether or not growth in T&D plant has directly caused or materially contributed to actual increases in T&D O&M expenses. ~~providing~~ estimates of the magnitude of change.

occurring in each year since 1995.

- b. Please provide a copy of all studies, analyses, reports or other documents supporting the response to item (a) above.

HECO Response:

- a. Growth in T&D plant affects the amount of maintenance, repair and replacement work on the system, whether the costs are charged to Capital or O&M. Please refer to HECO-817 for an illustration of the growth of various facilities on the T&D system. The overall growth in O&M expenses since 1985 is graphically illustrated on HECO-823. HECO has not attempted to calculate the amount of the increase attributable only to growth in T&D plant, and therefore, we are unable to provide any estimate on the magnitude of the change. The increase in O&M is due to a number of factors, in combination, as stated in our testimony and the effect of only one factor, in isolation, has not been calculated.
- b. Not applicable.

CA-IR-482

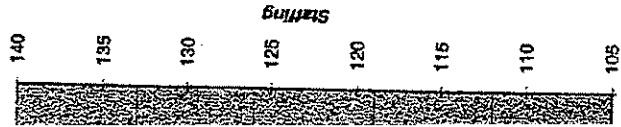
Ref: HECO T-9, pages 3 & 6-8 (Customer Accounts – Work Requirements).

At page 3, the first step in preparing HECO's O&M expense budget for Customer Accounts based staffing requirements on "forecasted operational and workload requirements." At page 8, the discussion of increased staffing included in the 2005 test year forecast indicates that 2003 level is not an accurate basis for comparison, instead citing to 2000-2001 and 2004. Please provide the following:

- a. How were "workload requirements" measured and quantified for purposes of preparing the test year forecast and determining increased staffing levels? Please explain and provide copies of any supporting documentation.
- b. Referring to item (a) above, were "workload requirements" determined first, then matched with the number of man-hours required to do the work, and finally translated into employee counts? Please explain and provide copies of any supporting documentation.
- c. How was the number of increased employees (i.e., 3 - bargaining unit; 16 – clerical, administrative support & supervisory staff) determined? Please explain and provide copies of any supporting documentation.

HECO Response:

- a. Workload requirements are determined by reviewing historical data which includes an assessment of the daily operational needs, backlog work and the ever increasing need to enhance our methods of analyses and improving our service to customers. This includes taking into consideration the increase in customer counts, backlog work and service levels. See Page 3 for details.
- b. Yes. Through the review of the daily requirements, backlog work and the growing need for enhanced analyses and improvements which includes taking into consideration the increase in customer counts, backlog work and service levels. See Page 3 for details.
- c. The increased number of employees was determined by analyses of the daily workload, backlog work and the need for enhanced analyses and improvements. This includes the increase in customer counts, backlog work and service levels. See Page 3 for details.



CA-IR-483

Ref: HECO T-9, pages 3 & 6-8 (Customer Accounts – Work Requirements).

At page 3, the first step in preparing HECO's O&M expense budget for Customer Accounts based staffing requirements on "forecasted operational and workload requirements." At page 8, the discussion of increased staffing included in the 2005 test year forecast indicates that 2003 level is not an accurate basis for comparison, instead citing to 2000-2001 and 2004. Please provide the following:

- a. How has the overall level of "workload requirements" for the 2005 test year forecast increased in relation to recent actual experience? Please explain.
- b. Please provide comparable "workload requirements" for calendar years 2003, 2004 and 2005 – noting whether the data represents actual or forecast levels.

HECO Response:

- a. The overall "workload requirements" has increased over the past few years. This is due to the increase in the customer count which results in an increase in payments processed, increase in outstanding field service orders and collections and reduced service levels.
- b. Please see Page 2 for comparable "workload requirements" for calendar years 2003, 2004 actual and 2005 estimate/actual (see Forecast Notes on Page 2 for specifics per line item).

In addition, where available, 2001 and 2002 actual "workload requirements" have been supplied.

	Average Actual 2001	Average Actual 2002	Average Actual 2003	Average Actual 2004	Forecast* 2005	
HECO Customer Count	279,479	281,871	284,532	287,258	292,710	Note 1
Annual Payment Processing Volume	3,224,487	3,272,644	3,282,308	3,293,979	3,340,095	Note 2
Service Levels	82%	77%	61%	46%	44%	Note 3
Actual Outstanding Field Service Orders	n/a	990	1,125	1,422	1,912	Note 4
Actual Outstanding Field Collection Orders	n/a	413	627	900	952	Note 5
Avg. Employee Count	120	116	115	119	134	

Forecast Notes*

Note 1: Customer Forecast made in March 2004

Note 2: 2005 estimate based on % customer forecast increase 2005 over 2004

Note 3: First two month of 2005. Service Levels are defined as the % of calls answered within 30 seconds. Industry benchmark for Service Levels is 80%.

Note 4: Based on average as of April 1, 2005

Note 5: Based on average as of April 1, 2005

CA-IR-484

Ref: HECO T-9, pages 3 & 6-8 (Customer Accounts – Work Requirements).

based staffing requirements on “forecasted operational and workload requirements.” At page 8, the discussion of increased staffing included in the 2005 test year forecast indicates that 2003 level is not an accurate basis for comparison, instead citing to 2000-2001 and 2004. Please provide the following:

- a. Does the increase in employees (i.e., 3 – bargaining unit; 16 – clerical, administrative support & supervisory staff) reduce the need for overtime during the 2005 forecast test year? Please explain and provide a copy of any supporting documentation.
- b. Please provide a comparison of the Customer Accounts straight time and overtime hours

OVERTIME COMPARISON
2001- 2004 ANNUAL RECORDED 2003 LAST QTR. RECORDED & 2005 ANNUAL FORECAST

RA	RA Description	2001 Annual Recorded			2002 Annual Recorded			2003 Annual Recorded			2003 Last Qtr. Recorded			2004 Annual Recorded			2005 Annual Forecast		
		Productive Hrs	Overtime Hours	% OT	Productive Hrs	Overtime Hours	% OT	Productive Hrs	Overtime Hours	% OT	Productive Hrs	Overtime Hours	% OT	Productive Hrs	Overtime Hours	% OT	Productive Hrs	Overtime Hours	% OT
	PCG Field Svc. & Collection	44,913	453	1.0%	38,838	354	0.9%	40,057	1,131	2.9%	10,476	944	9.0%	44,647	2,566	5.7%	46,112	1,744	3.8%
	PCM Meter Reading	57,652	2,824	4.9%	57,904	972	1.7%	58,300	2,739	4.7%	14,096	1,927	13.7%	56,777	4,554	8.0%	65,365	1,312	2.0%
	PCP Payment Processing	33,738	522	1.5%	31,641	177	0.6%	29,025	298	1.0%	7,275	129	1.8%	26,280	1,206	4.6%	37,568	670	1.8%
	PCH Customer Assist. Ctr.	48,935	511	1.0%	48,182	207	0.4%	47,042	766	1.6%	11,418	650	5.7%	45,759	3,589	7.8%	56,584	704	1.2%
		185,236	4,309	2.3%	176,565	1,709	1.0%	174,424	4,934	2.8%	43,265	3,649	8.4%	173,463	11,915	6.9%	205,629	4,430	2.2%

Source: Recorded Information from Payroll Recap Report (HWR82CA). Forecast Information from ResLev05-02-ABM.PLN

CA-IR-485

Ref: HECO T-9, pages 6-8 & 10 (Customer Accounts – Work Requirements).

At page 3, the first step in preparing HECO's O&M expense budget for Customer Accounts based staffing requirements on "forecasted operational and workload requirements." At page 8, the discussion of increased staffing included in the 2005 test year forecast indicates that 2003 level is not an accurate basis for comparison, instead citing to 2000-2001 and 2004. At page 10, the continued utilization of outside consulting services is discussed. Please provide the following:

- a. Does the increase in employees (i.e., 3 – bargaining unit; 16 – clerical, administrative support & supervisory staff) reduce the need for reliance on contract labor during the 2005 forecast test year? Please explain and provide a copy of any supporting documentation.
- b. Please provide a comparison of the Customer Accounts contract labor costs included in the 2005 nonlabor test year forecast with historical levels in calendar years 2001 through 2004.
- c. Are the 19 additional Customer Service employees expected to participate in or materially displace historical reliance on outside consulting services to support technology and IT system initiatives, initiative evaluation, maintain operations or address new issues and work expected to arise? Please explain.

HECO Response:

- a. No. Please reference CA-IR-76, c. 1. for further discussion.
- b. The following is a comparison of contract labor costs included in the 2005 nonlabor test year forecast with historical levels in calendar years 2001 through 2004:

2001	\$138,674	historical
2002	\$130,150	historical
2003	\$157,050	historical
2004	\$169,250	historical
2005	\$204,000	Test Year Forecast

- c. No. The 19 additional Customer Service employees are not expected to participate in or

materially displace historical reliance on outside consulting services to support technology and IT system initiatives. This is explained in the testimony HECO T-9, page 10, lines 12 - 17. "Ongoing use of various experts and consultants enable us to get the benefit of expert assistance as needed on specialized areas. We utilize expert and specialist help on a part time basis in order to balance the high cost of outside experts with the value and benefit of such resources. We believe that this is an effective way to utilize expert assistance without having to maintain a staff of experts/specialists."

CA-IR-486

Ref: HECO T-10, pages 4 & 11-12 (Customer Service – Work Requirements).

At page 4, the preparation of HECO's 2005 Customer Service O&M expense budget is described as "first determining workload requirements for various customer service activities in 2005 and assigning employees to specific labor classes." At pages 11-12, the increased staffing included in the 2005 test year forecast (i.e., 17 more employees than in 2003) is briefly discussed. Please provide the following:

- a. How were "workload requirements" measured and quantified for purposes of preparing the test year forecast? Please explain and provide copies of any supporting documentation.
- b. Referring to item (a) above, how were the test year "workload requirements" translated into required employee counts? Please explain and provide copies of any supporting documentation.
- c. How was the number of increased employees determined? Please explain and provide copies of any supporting documentation.

HECO Response:

- a. Refer to CA-IR-1, HECO T-10 for Customer Services O&M expense budget assumptions and anticipated work to be performed for non-DSM program expenditures. Refer to CA-IR-1, HECO T-11, Attachments 1 and 2 for budget assumptions and anticipated work to be performed for DSM program expenditures.
- b. See response to part a above.
- c. DSM Programs:

HECO has been utilizing the services of nine contract hires to assist in implementing the five existing DSM Programs. HECO proposes to place the labor expenses associated with these contract hires into base rates. With the introduction of three new DSM programs, Residential Customer Energy Awareness Program, Residential Direct Load Control Program and the Commercial and Industrial Direct Load Control Program, HECO assessed that it

would need a program manager for each new program and an engineer to be shared by the two direct load control programs. (See HECO T-11, p. 60, lines 7-14, p. 73, lines 18-24, and p. 81, line 20, to p. 82, line 4.) With the introduction of enhanced commercial and industrial DSM programs which included new measures, increased volume, increased marketing to achieve deeper market penetration, HECO assessed that it would need the additional services of two new program engineers. (See HECO T-11, p. 18, lines 4-10, p. 27, line 25, to p. 28, line 6, and p. 36, lines 8-14.) See also response to CA-IR-1, HECO T-11, Attachments 1 and 2.

Non DSM Programs:

Two additional Marketing Services Representatives, included in the 2005 Test Year, were hired in December 2004. The major reason for the hiring was to provide increased coverage to our commercial customers and provide a higher level of service for all 400 major customers. (Refer also to HECO T-10, page 15 of 72.)

The 2005 forecast also included one additional position in the Corporate Communications Division. (Refer to CA-IR-1, T-10, Page 3 of 7 for anticipated workload requirements of this position.) This additional position was later filled by the hiring of a Public Affairs Specialist in the VP Government and Community Affairs area.

Summary

The total of 18 positions identified above is partially offset by slight reductions in other labor requirements in the Customer Service area to result in an increase of 16.7 employee count equivalents, as shown in HECO-1011.

CA-IR-487

Ref: HECO T-10, pages 4 & 11-12 (Customer Service Work Requirements).

At page 4, the preparation of HECO's 2005 Customer Service O&M expense budget is described as "first determining workload requirements for various customer service activities in 2005 and assigning employees to specific labor classes." At pages 11-12, the increased staffing included in the 2005 test year forecast (i.e., 17 more employees than in 2003) is briefly discussed. Please provide the following:

- a. How has the overall level of "workload requirements" for the 2005 test year forecast increased in relation to recent actual experience? Please explain.
- b. Please provide comparable "workload requirements" for calendar years 2003, 2004 and 2005 – noting whether the data is based on actual or forecast levels.

HECO Response:

- a. (Note: In Order No. 21698, the Commission separated the DSM programs from the rate case into the Energy Efficient Docket, Docket No. 05-0069. For comparability with the 2003 and 2004 workload requirements (see part b. below), the discussion of 2005 workload requirement encompasses the DSM programs proposed in the rate case.)

In the 2005 Test Year Forecast, HECO introduced the following five DSM programs: (1) Residential Direct Load Control Program; (2) Commercial and Industrial Direct Load Control Program; (3) Residential Customer Energy Awareness Program; (4) Energy Solutions for the Home Program; and (5) the Residential Low Income Program that were not available in early 2004. In addition, the scope of work for the five existing DSM programs has been expanded in 2005 to include new measures and increased outreach to achieve deeper marketing penetration. See response to CA-IR-486 (a) and CA-IR-1, HECO T-11, Attachment 1 and 2.

For the Marketing Services Division, the scope of coverage for major customer services has been expanded over prior years. See response to CA-IR-486 (a).

With respect to the Corporate Communication Division, refer to CA-IR-1 Page 3 of 7 for increasing communications workload requirements.

- b. See page 6 for DSM program labor requirements. 2003 and 2004 DSM program labor requirements were based on implementing five existing DSM programs. The 2005 DSM program labor requirements forecast is based on adding five additional DSM programs and expanding the five existing DSM programs. See also HECO Response to CA-IR-489 (a).

2003 Key Accomplishments (Actual)

Energy Efficiency Programs

- Filed three new DSM Programs
 - Residential Direct Load Control Program

Commercial and Industrial Direct Load Control Program

- Over 1,400 customers attended meetings and training sessions on our DSM programs.
- Through December 2003, have achieved 4.3 MW in net demand reductions.
- Solar water heater program continues to contribute to the company's RPS goal with 1,833 new solar water heater systems installed.

New Electrotechnology Programs

- Implemented 500 kW Flywheel Project at University of Hawaii

including field investigations, system re-commissioning, and proposal development.

Major Customer Programs

- Power Quality and Power Measurement Consulting Services provided to over 23 major commercial customers and at least 3 residential customers.
- Revised both Residential and Commercial PQ Webpages on heco.com, and published a new Residential PQ brochure.
- Published 4 Quarterly Issues of the Powerlines Newsletter.
- CHP evaluation was completed for the Outrigger Beach Walk Project.
- Heat Pump Systems Monitoring, Analysis and Consulting Services provided to over 18 major customers.
- There were over 363 participants at the PCEA conference held on Maui. This included a record high of 43 exhibitor booths.
- Executive Meeting of DOD partnership was held on August 28, 2003.
- Executed over 90 customer contracts associated with Executive Call Center.

- Supported by DSM evaluation efforts
- Supported by the development and implementation of mass market strategies to promote the DSM programs and to promote the energy conservation campaign.
- Provide customer technology applications and other services to customers:
 - University of Hawaii Medical School: installed a 500 kVA Pillar flywheel for critical voltage ride-through support on critical laboratory facilities, working in partnership with EPRI-PEAC. Flywheel hardware was procured at no cost from EPRI.
 - Power Quality Program: completed site visits, data acquisition, and analyses for over 50 commercial and residential customers.
 - CTAD engineers provided third party reviews and completed site visits to 17 projects.
- Major Customer Programs
 - Facilitated two EXCOM meetings with Department of Defense (DOD)
 - Hosted successful and well attended Energy Expo in October
 - Provided Dedicated One-Stop Account Management Services that proactively identifies and addresses Major Customer needs, and that is also responsive to emergent Customer needs
 - Provided Outage Management/Communications and Generation Shortfall Communications in a responsive, timely and accurate manner for major customers individually and as a group
 - Developed/maintained multiple customer contact media and by continually seeking to address Customer needs

- Held, coordinated, and supported Customer events/meetings/workshops/
conferences to share technical, operational, financial expertise; to recognize
and/or thank customers; and/or, to provide an appropriate forum for
customer/customer, vendor/consultant/customer, and HECO/customer
interactions.

■ *Develop/Maintained Partnering Relationship with Customer organizations by*

implementing/executing

- Account Manager Multi-level Contact Program
- HECO Executive Call Program
- And, positioned HECO as a partner that can assist with the conceptual
stage of projects, specification development, vendor selection,
equipment installation, acceptance testing, and post operational

DSM Program Labor Requirements

	<u>2003</u>	<u>2004</u>	<u>2005</u>
HECO Employees already in base rates			
DSM Director	X	X	X
Residential Program Manager	X	X	X
C&I Program Manager	X	X	X
DSM Analyst	X	X	X
Clerk	X	X	X

Additional HECO Employees Proposed in 2005 Test Year

C&I Engineer	X
RDLC Program Manager	X
CIDLC Program Manager	X
Load Management Engineer	X

Additional HECO Employees to be added in Energy Efficiency Docket

Residential DSM Analyst	X	X	X
DSM Analyst	X	X	X
C&I Engineer	X	X	X
C&I Specialist	X	X	X
CICR Engineer	X	X	X
C&I Engineer	X	X	X
C&I Engineer	X	X	X
SR contract administrator	X	X	X
SM - Marketing specialist	X	X	X
SM - Evaluation/marketing assist	X	X	X
C&I Engr 1			X
RCEA Program Manager			X

CA-IR-488

Ref: HECO T-10, pages 4 & 11-12 (Customer Service – Work Requirements).

At page 4, the preparation of HECO's 2005 Customer Service O&M expense budget is described as "first determining workload requirements for various customer service activities in 2005 and assigning employees to specific labor classes." At pages 11-12, the increased staffing included in the 2005 test year forecast (i.e., 17 more employees than in 2003) is briefly discussed. Please provide the following:

- a. Does the increase in employees reduce the need for overtime during the 2005 forecast test year? Please explain and provide a copy of any supporting documentation.
- b. Please provide a comparison of the Customer Service straight time and overtime hours included in the 2005 test year forecast with historical levels in calendar years 2001 through 2004.
- c. If the responses to items (a) and (b) above indicate that the addition of employees in the test year forecast has not reduced overtime requirements, please provide a detailed explanation (and copies of any supporting documentation) addressing why overtime levels are not expected to decline as a result of adding 17 Customer Service employees.

HECO Response:

- a. No. The increase in employees consists entirely of merit employees who do not charge overtime. Overtime dollars are not identifiable in the distributed labor dollars which are used in the development of the 2005 test year standard labor rates. Therefore, 2005 overtime dollar information is not available. Note that overtime information is only available in payroll data. See response to CA-IR-249 (b).
- b. As indicated in response (a) above, 2005 overtime information is not available. Refer to page 3 for a summary of 2001-2004 recorded straight time hours and overtime hours for the Corporate Communications Division and Energy Services Department. The Corporate Communications Division and Energy Services Department have been highlighted since the Customer Services employee increases come from these two areas. As indicated on page 3,

overtime hours during the 2001-2004 period are not a significant part of total productive labor hours. Overtime hours peaked at 820 hours in 2004 and represented only 1.0% of total productive labor hours.

- c. As indicated in (b) above, overtime requirements are not significant for the two areas examined. The addition of employees in the test year forecast to these two areas should not result in an increase to the current low overtime levels as these new positions are all merit positions exempt from overtime.

CA-1, 488 (b)
CUSTOMER SERVICES
PRODUCTIVE STRAIGHT TIME/OVERTIME HOURS
2001-2004 ACTUALS

Department/Division	2001 Annual Recorded			2002 Annual Recorded			2003 Annual Recorded			2004 Annual Recorded		
	Productive Straight Hrs.	Overtime Hrs.	Total Productive Hrs.	Productive Straight Hrs.	Overtime Hrs.	Total Productive Hrs.	Productive Straight Hrs.	Overtime Hrs.	Total Productive Hrs.	Productive Straight Hrs.	Overtime Hrs.	Total Productive Hrs.
Corporate Communications	16,227	1	16,228	15,152	-	15,152	17,493	13	17,506	15,462	21	15,483
Energy Services Dept.	78,488	13	78,501	76,517	84	76,601	60,923	161	61,084	64,489	799	65,288
	94,715	14	94,729	91,669	84	91,753	78,416	174	78,590	79,951	820	80,771
% OT/Total Prod. Hrs.			n/m			n/m			0.2%			1.0%

Source:
Corporate Communication: DARS 659 (Department Overtime) Report
Energy Services Department: Payroll Recap Report (HWR82CA) for 2004
DARS 659 (Department Overtime) Report -2001,2002,2003

LEGEND
n/m not meaningful. Less than .1%

CA-IR-489

Ref: HECO T-10, pages 4 & 11-12 (Customer Service – Work Requirements).

At page 4, the preparation of HECO's 2005 Customer Service O&M expense budget is described as "first determining workload requirements for various customer service activities in 2005 and assigning employees to specific labor classes." At pages 11-12, the increased staffing included in the 2005 test year forecast (i.e., 17 more employees than in 2003) is briefly discussed. Please provide the following:

- a. Does the increase in Customer Service employees reduce the need for reliance on contract labor during the 2005 forecast test year? Please explain and provide a copy of any supporting documentation.

b. Please provide a comparison of the Customer Service contract labor used in 2003 and 2005.

1.xls

CA-IR-489 (b)
CUSTOMER SERVICES
Contract Hire Recap
(2001-2005)

6/9/2005

Account	Dept	*Act #	Project	2001 Actuals ⁽¹⁾	2002 Actuals ⁽¹⁾	2003 Actuals ⁽²⁾	2004 Actuals ⁽³⁾	2005 Test Year ⁽⁴⁾	2005 Revised Test Year ⁽⁵⁾
IR Exp Ed & Cons Aff		750	---	42,599	21,023	-	-	-	-
	Engy Svcs (non-DSM)	102	---	227	9,361	-	-	-	-
		110	Core Marketing Pgms	8,246	-	-	-	-	-
				8,473	9,361	-	-	-	-
	Engy Svc (DSM)	714	DSM CIEE	205,472	209,695	260,749	260,608	92,404	-
		714	DSM CINC	106,770	77,114	87,038	88,752	30,743	-
		714	DSM CICR	223,714	234,879	257,116	244,622	123,009	-
		714	DSM REWH	98,815	67,604	70,211	75,801	-	-
		714	DSM RNC	20,436	26,835	28,748	26,372	37,675	-
		714	Res Cust Energy Awareness	-	-	-	-	100,000	-
		714	Energy Solutions for the Home	-	-	-	-	200,000	-
		714	Res Low Income Program	-	-	-	-	50,000	-
				655,207	616,127	703,862	696,155	633,831	-
				706,279	646,511	703,862	696,155	633,831	-

ch04.CTL
CTL adjusted for reclassification
Attachment 1, Page 1 of 66
= \$703,862)

ch04.CTL
ch04.CTL adjusted for 2005 Forecast Adjustments
1st adjustments = \$633,831)
these incremental DSM program
Docket No. 04-0113 and included instead
o. 05-0069.
Docket No. 04-0113 reflect base
D&O 21698 (March 16, 2005).

CA-IR-490

Ref: HECO T-13, pages 27-28, response to CA-IR-256 and HECO-1312 (HECO Billings to HEI).

The referenced response indicates that HECO fully loads its billings to HEI for rent, benefits, and other overhead costs similar to the charges HECO receives from HEI. Please provide the following:

- a. For a recent actual HECO billing to HEI, please provide the billed amount along with a copy of all supporting documentation – including the calculation of loadings for rent, benefits and other overhead costs.
- b. With regard to the 2005 test year forecast, the Company's supporting workpaper spreadsheet files did not include HECO-1312. Please provide HECO-1312 in an Excel spreadsheet file format, if available.
- c. Referring to HECO-1312 and item (b) above, please provide the algorithms, cell formulae and allocations underlying the calculation of each individual amount of HECO billings to HEI. [If the requested information has already been provided, please provide a pinpoint reference to said support for each amount appearing on HECO-1312.]
- d. Please explain how and whether the labor and nonlabor costs set forth on HECO-1312 are linked to HECO's 2005 test year forecast of labor and nonlabor expenses.

HECO Response:

- a. See pages 3 through 13 for the HECO billing to HEI dated February 15, 2005. The labor on-costs included in the billing are as follows:

<u>Expense element</u>	<u>On-cost</u>	<u>Rate</u>	<u>Calculation</u>
406	Corporate Administration	\$2.40/hr	See HECO-1314
422	Employee Benefits	\$7.99/hr	See HECO-1315
421	Non-Productive Wages	\$3.82/hr	See page 14
423	Payroll Taxes	8.39%/\$	See pages 15 - 18

Transferred to Other Than Construction note is implied to be applied to billable production

Other Than Construction rate, it is implicitly included in the Corporate Administrative on-



Hawaiian Electric Co., Inc.

PO Box 2750

Honolulu, HI 96840-0001

February 15, 2005

HAWAIIAN ELECTRIC INDUSTRIES, INC.

ATTN: CURTIS HARADA

Project/Work Order Detail Report

\$15,209.69

Please make payment payable to Hawaiian Electric Company, Inc. Remittances can be sent to Hawaiian Electric Company, Inc., P. O. Box 2750, Honolulu, Hawaii 96840-0001, Attention: Cashiers (KS1-CP). Inquiries can be made with Harvey Yamashita at 543-7940.

Page: 1
Report: SUR9XCA
Version: 5.2.36.001A

Work Order) - XREF

Corporation Admin Rate

(Note 1)

Total Billable

7,686.59

1,746.26

1,310.80

494.69

1,034.73

1,498.39

8,278.94

1,000.56

212.98

39.60

63.03

131.84

166.09

1,088.14

999.96

780.00

31.80

50.75

105.99

149.25

2,117.75

359.14

338.71

8.40

13.37

27.97

58.55

806.14

102.61

See element 406.

BY: YAMASHITA, HARVEY Y
On: 02/09/05 at: 14:44:38

HAWAIIAN ELECTRIC COMPANY

Intercompany Billing Report (Project

186400 HAWAIIAN ELECTRIC INDU

For the month of 01/20

Subject Work Order Account Billable Amount

AD000068 HEI 7,686.59

AD000068 P9P755HEIBENPAPRESI155 1,746.26

AD000068 P9P755HEIBENPAPRESI155 (Note 1) 1,310.80

AD000068 P9P755HEIBENPAPRESI406 494.69

AD000068 P9P755HEIBENPAPRESI421 1,034.73

AD000068 P9P755HEIBENPAPRESI422 1,498.39

AD000068 P9P755HEIBENPAPRESI423 8,278.94

Project/Work Order Total

Proxy Statement/Proxy - HEI 1,000.56

AD000164 P9P755HEIBENPAPRESI155 212.98

AD000164 P9P755HEIBENPAPRESI155 39.60

AD000164 P9P755HEIBENPAPRESI406 63.03

AD000164 P9P755HEIBENPAPRESI421 131.84

AD000164 P9P755HEIBENPAPRESI422 166.09

AD000164 P9P755HEIBENPAPRESI423 1,088.14

Project/Work Order Total

GM Service Fees for HEI 999.96

AD000180 P9P700HEIBENPAPRESI150 780.00

AD000180 P9P700HEIBENPAPRESI155 31.80

AD000180 P9P700HEIBENPAPRESI406 50.75

AD000180 P9P700HEIBENPAPRESI421 105.99

AD000180 P9P700HEIBENPAPRESI422 149.25

AD000180 P9P700HEIBENPAPRESI423 2,117.75

Project/Work Order Total

GM Service Fees for HEI - BOD 359.14

AD000194 P9P755HEIBENPAPRESI150 338.71

AD000194 P9P755HEIBENPAPRESI155 8.40

AD000194 P9P755HEIBENPAPRESI406 13.37

AD000194 P9P755HEIBENPAPRESI421 27.97

AD000194 P9P755HEIBENPAPRESI422 58.55

AD000194 P9P755HEIBENPAPRESI423 806.14

Project/Work Order Total

GM Service Fees for HEI - Pension 102.61

AD000578 P9P779HEIBENPAPRESI150

Note 1: The Corporate Admin on cost is charged under ex

HAIIAN ELECTRIC COMPANY, INC.
Billing Report (Project / Work Order) - XREF
HAWAIIAN ELECTRIC INDUSTRIES
For the month of 01/2005

Page: 2
Report: SUR9XCA
Version: 5.2.36.001A

Billable Amount	Corp Admin Rate	Total Billable
81.19	.00	81.19
2.40	.00	2.40
3.82	.00	3.82
7.95	.00	7.95
15.42	.00	15.42
213.43	.00	213.43
121.28	.00	121.28
36.48	.00	36.48
4.80	.00	4.80
7.64	.00	7.64
15.98	.00	15.98
7.12	.00	7.12
120.34	.00	120.34
22.42	.00	22.42
3.70	.00	3.70
1.20	.00	1.20
1.52	.00	1.52
4.00	.00	4.00
2.20	.00	2.20
35.44	.00	35.44
2,117.59	.00	2,117.59
159.02	.00	159.02
127.43	.00	127.43
221.43	.00	221.43
108.97	.00	108.97
2,340.90	.00	2,340.90
61.34	.00	61.34
13.67	.00	13.67
4.80	.00	4.80

Ms (KShirakawa)

HEI

ces - HEI

Req. By: YAMASHITA, HARVEY Y
Run On: 02/09/05 at: 14:44:38

HAWAIIAN ELECTRIC COMPANY, INC.
Intercompany Billing Report (Project / Work Order) - XREF

Page: 3
Report: SUR9XCA
Version: 5.2.36.001A

186400 HAWAIIAN ELECTRIC INDUSTRIES
For the month of 01/2005

Project	Work Order	Account	Billable Amount	Corp Admin Rate	Total Billable
	FI000016	PAC818HEIBENPAZZZZZ421	7.64	.00	7.64
	FI000016	PAC818HEIBENPAZZZZZ422	15.98	.00	15.98
	FI000016	PAC818HEIBENPAZZZZZ423	4.00	.00	4.00
		Project/Work Order Total	80.09	.00	80.09
	FI000031	Pension accounting - HEI		.00	
	FI000031	PAC818HEIBENPAZZZZZ150	91.56	.00	91.56
	FI000031	PAC818HEIBENPAZZZZZ155	18.00	.00	18.00
	FI000031	PAC818HEIBENPAZZZZZ406	17.20	.00	17.20
	FI000031	PAC818HEIBENPAZZZZZ421	11.46	.00	11.46
	FI000031	PAC818HEIBENPAZZZZZ422	23.99	.00	23.99
	FI000031	PAC818HEIBENPAZZZZZ423	6.17	.00	6.17
		Project/Work Order Total	122.38	.00	122.38
	CS000019	ICB-Respond to customer inquiry-HEI		.00	
	CS000019	PCP600HEIBENPCZZZZZ150	756.62	.00	756.62
	CS000019	PCP600HEIBENPCZZZZZ155	40.66	.00	40.66
	CS000019	PCP600HEIBENPCZZZZZ406	79.20	.00	79.20
	CS000019	PCP600HEIBENPCZZZZZ421	126.06	.00	126.06
	CS000019	PCP600HEIBENPCZZZZZ422	263.74	.00	263.74
	CS000019	PCP600HEIBENPCZZZZZ423	66.92	.00	66.92
		Project/Work Order Total	1,333.20	.00	1,333.20
	IT0000216	Long Distance Phone Charges - HEI		.00	
		PEI900HEIBENPEZZZZZ501	597.35	.00	597.35
		Project/Work Order Total	597.35	.00	597.35
	IT0000255	I-3237 HEI STCK TR JOB-PRINTING		.00	
		PEI895HEIBENPEZZZZZ451	265.00	.00	265.00
		Project/Work Order Total	265.00	.00	265.00
	IT0000275	92 55104 A63 L HEI Oceanic Cable TVchgs		.00	
		PEI896HEIBENPEZZZZZ501	58.91	.00	58.91
		Project/Work Order Total	58.91	.00	58.91
	HR000018	HEI SML ADMIN		.00	
	HR000018	PEC775HEIBENPEZZZZZ150	913.60	.00	913.60
	HR000018	PFC775HEIBENPEZZZZZ155	21.68	.00	21.68

A, HARVEY Y
at: 14:44:38

HAWAIIAN ELECTRIC COMPANY, INC.
Intercompany Billing Report (Project / Work Order) - XREF

Page: 4
Report: SUR9XCA
Version: 5.2.36.001A

186400 HAWAIIAN ELECTRIC INDUSTRIES

For the month of 01/2005

Account	Billable Amount	Corp Admin Rate	Total Billable
PEC775 PEC775 PEC775 Projec	67.20 106.96 223.72 1,364.62	.00 .00 .00 .00	67.20 106.96 223.72 1,364.62
HEI CO PEZ775 Projec	262.18 262.18	.00 .00	262.18 262.18
HEI-Ma PEB755 PEB755 PEB755 PEB755 PEB755 PEB755 Projec	52.60 8.55- 2.40 3.82 3.23 3.69 61.95	.00 .00 .00 .00 .00 .00 .00	52.60 8.55- 2.40 3.82 3.23 3.69 61.95
Staff PEB767 PEB767 Projec	13 .01 .14	.00 .00 .00	13 .01 .14
Mainta PEA766 PEA766 PEA766 PEA766 PEA766 Projec	90.41 .82 7.20 11.46 23.99 141.51	.00 .00 .00 .00 .00 .00	90.41 .82 7.20 11.46 23.99 141.51
HEI PEZ778 PEB778 PEB778 PEB778	383.43 255.00 26.59- 25.20	.00 .00 .00 .00	383.43 255.00 26.59- 25.20

HAWAIIAN ELECTRIC COMPANY, INC.				Page: 5
Intercompany Billing Report (Project / Work Order) - XREF				Report: SUR9XCA
				Version: 5.2.36.001A
18	186400	HAWAIIAN ELECTRIC INDUSTRIES		
For the month of 01/2005				
Count	Billable Amount	Corp Admin Rate	Total Billable	
3I - OPEB ADMINISTRATION				
3I779HEIBENPZZZZZ451	5.09	.00	5.09	
3I779HEIBENPZZZZZ150	220.85	.00	220.85	
3I779HEIBENPZZZZZ155	8.39	.00	8.39	
3I779HEIBENPZZZZZ406	19.58	.00	19.58	
3I779HEIBENPZZZZZ421	31.19	.00	31.19	
3I779HEIBENPZZZZZ422	65.21	.00	65.21	
3I779HEIBENPZZZZZ423	17.84	.00	17.84	
Project/Work Order Total	351.37	.00	351.37	
3I - HEIRS ADMINISTRATION				
3I779HEIBENPZZZZZ451	5.09	.00	5.09	
3I779HEIBENPZZZZZ150	62.64	.00	62.64	
3I779HEIBENPZZZZZ155	9.28	.00	9.28	
3I779HEIBENPZZZZZ406	6.00	.00	6.00	
3I779HEIBENPZZZZZ421	9.56	.00	9.56	
3I779HEIBENPZZZZZ422	19.98	.00	19.98	
3I779HEIBENPZZZZZ423	4.46	.00	4.46	
Project/Work Order Total	98.45	.00	98.45	
EI - ADMINISTRATION				
EI776HEIBENPZZZZZ451	15.03	.00	15.03	
EI776HEIBENPZZZZZ150	7.67	.00	7.67	
EI776HEIBENPZZZZZ155	7.41	.00	7.41	
EI776HEIBENPZZZZZ406	.60	.00	.60	
EI776HEIBENPZZZZZ421	.96	.00	.96	
EI776HEIBENPZZZZZ422	2.00	.00	2.00	
EI776HEIBENPZZZZZ423	.61	.00	.61	
Project/Work Order Total	26.46	.00	26.46	
EI - ADMINISTRATION				
EI780HEIBENPZZZZZ150	45.49	.00	45.49	
EI780HEIBENPZZZZZ155	.75	.00	.75	

Req By: YAMASHITA, HARVEY Y
Run On: 02/09/05 at: 14:44:38
HAWAIIAN ELECTRIC COMPANY, INC.
Intercompany Billing Report (Project / Work Order) - XREF
Page: 6
Report: SUR9XCA
Version: 5.2.36.001A

186400 HAWAIIAN ELECTRIC INDUSTRIES
For the month of 01/2005

Project	Work Order	Account	Billable Amount	Corp Admin Rate	Total Billable
R0001214		PFB780HEIBENPZZZZZ406	3.60	.00	3.60
R0001214		PFB780HEIBENPZZZZZ421	5.75	.00	5.75
R0001214		PFB780HEIBENPZZZZZ422	12.00	.00	12.00
R0001214		PFB780HEIBENPZZZZZ423	3.74	.00	3.74
		Project/Work Order Total	69.83	.00	69.83
R0001258		HEI - PENSION ADMINISTRATION			
R0001258		PFB779HEIBENPZZZZZ150	103.11	.00	103.11
R0001258		PFB779HEIBENPZZZZZ155	7.76	.00	7.76
R0001258		PFB779HEIBENPZZZZZ406	9.16	.00	9.16
R0001258		PFB779HEIBENPZZZZZ421	14.61	.00	14.61
R0001258		PFB779HEIBENPZZZZZ422	30.54	.00	30.54
R0001258		PFB779HEIBENPZZZZZ423	7.99	.00	7.99
		Project/Work Order Total	157.65	.00	157.65
R0005159		HEI - Exec Life Loan			
		PFB780HEIBENPZZZZZ2509	21,217.60	.00	21,217.60
		Project/Work Order Total	21,217.60	.00	21,217.60
		ROOM SET UP - HEI CLASSROOM			
	FA000223	PFB934HEIBENPHZZZZ150	26.39	.00	26.39
	FA000223	PFB934HEIBENPHZZZZ155	3.46	.00	3.46
	FA000223	PFB934HEIBENPHZZZZ406	2.40	.00	2.40
	FA000223	PFB934HEIBENPHZZZZ421	3.82	.00	3.82
	FA000223	PFB934HEIBENPHZZZZ422	7.99	.00	7.99
	FA000223	PFB934HEIBENPHZZZZ423	1.92	.00	1.92
		Project/Work Order Total	39.06	.00	39.06
		HALE KEKELA - HECO labor charges (PHF)			
	FA000290	PHF931HEIBENPHZZZZ150	122.68	.00	122.68
	FA000290	PHF931HEIBENPHZZZZ155	6.28	.00	6.28
	FA000290	PHF931HEIBENPHZZZZ406	9.60	.00	9.60
	FA000290	PHF931HEIBENPHZZZZ421	15.28	.00	15.28
	FA000290	PHF931HEIBENPHZZZZ422	31.96	.00	31.96
	FA000290	PHF931HEIBENPHZZZZ423	10.98	.00	10.98
	FA000290	PJC931HEIBENPHZZZZ150	149.70	.00	149.70
	FA000290	PJC931HEIBENPHZZZZ155	6.32	.00	6.32
	FA000290	PJC931HEIBENPHZZZZ406	12.00	.00	12.00

Req. By: YAMASHITA, HARVEY Y		HAWAIIAN ELECTRIC COMPANY, INC.		Page: 7	
Run on: 02/09/05 at: 14:44:38		Intercompany Billing Report (Project / Work Order) - XREF		Report: SUP9XCA	
				Version: 5.2.36.001A	

		186400 HAWAIIAN ELECTRIC INDUSTRIES			
For the month of 01/2005					

Project	Work Order	Account	Billable Amount	Corp Admin Rate	Total Billable

FA000290		PJC931HEIBENPHZZZZ421	19.10	.00	19.10
FA000290		PJC931HEIBENPHZZZZ422	39.95	.00	39.95
FA000290		PJC931HEIBENPHZZZZ423	12.03	.00	12.03
		Project/Work Order Total	425.24	.00	425.24

FA127035		2004 Treasures Office Modifications			
FA127035		PHF931HEIBENPHZZZZ150	30.67	.00	30.67
FA127035		PHF931HEIBENPHZZZZ155	.62	.00	.62
FA127035		PHF931HEIBENPHZZZZ406	2.40	.00	2.40
FA127035		PHF931HEIBENPHZZZZ421	3.82	.00	3.82
FA127035		PHF931HEIBENPHZZZZ422	7.99	.00	7.99
FA127035		PHF931HEIBENPHZZZZ423	2.52	.00	2.52
		Project/Work Order Total	46.78	.00	46.78

FI000078		4T-Bank Lines&Ltrs Of Cdt, Accts, Svcs-HEI			
FI000078		PKT825HEIBENPKZZZZ150	99.56	.00	99.56
FI000078		PKT825HEIBENPKZZZZ155	15.51	.00	15.51
FI000078		PKT825HEIBENPKZZZZ406	7.62	.00	7.62
FI000078		PKT825HEIBENPKZZZZ421	12.53	.00	12.53
FI000078		PKT825HEIBENPKZZZZ422	25.03	.00	25.03
FI000078		PKT825HEIBENPKZZZZ423	7.02	.00	7.02
		Project/Work Order Total	136.25	.00	136.25

FI000080		4T-Funding - HEI			
FI000080		PE2825HEIBENPKZZZZ451	317.50	.00	317.50
FI000080		PKC8225HEIBENPKZZZZ150	60.42	.00	60.42
FI000080		PKC8225HEIBENPKZZZZ155	3.80	.00	3.80
FI000080		PKC8225HEIBENPKZZZZ406	4.80	.00	4.80
FI000080		PKC8225HEIBENPKZZZZ421	7.64	.00	7.64
FI000080		PKC8225HEIBENPKZZZZ422	15.98	.00	15.98
FI000080		PKC8225HEIBENPKZZZZ423	4.74	.00	4.74
FI000080		PKT8225HEIBENPKZZZZ150	841.16	.00	841.16
FI000080		PKT8225HEIBENPKZZZZ155	125.08	.00	125.08
FI000080		PKT8225HEIBENPKZZZZ406	62.12	.00	62.12
FI000080		PKT8225HEIBENPKZZZZ421	107.92	.00	107.92
FI000080		PKT8225HEIBENPKZZZZ422	199.66	.00	199.66
FI000080		PKT8225HEIBENPKZZZZ423	59.47	.00	59.47

Req. BY: YAMASHITA, HARVEY Y
 Run On: 02/09/05 at: 14:44:38
 HAWAIIAN ELECTRIC COMPANY, INC.
 Intercompany Billing Report (Project / Work Order) - XREF
 Page: 8
 Report: SUR9XCA
 Version: 5.2.36.001A

186400 HAWAIIAN ELECTRIC INDUSTRIES
 For the month of 01/2005

Project	Work Order	Account	Billable Amount	Corp Admin Rate	Total Billable
		Project/Work Order Total	1,552.53	.00	1,552.53
		4T-Reports - HEI			
	FI000085	PKT825HEIBENPKZZZZZ150	207.03	.00	207.03
	FI000085	PKT825HEIBENPKZZZZZ155	35.21	.00	35.21
	FI000085	PKT825HEIBENPKZZZZZ406	16.20	.00	16.20
	FI000085	PKT825HEIBENPKZZZZZ421	25.79	.00	25.79
	FI000085	PKT825HEIBENPKZZZZZ422	53.94	.00	53.94
	FI000085	PKT825HEIBENPKZZZZZ423	14.41	.00	14.41
		Project/Work Order Total	282.16	.00	282.16
		4T-Misc/Non-routine Work - HEI			
	FI000086	PKT825HEIBENPKZZZZZ150	823.73	.00	823.73
	FI000086	PKT825HEIBENPKZZZZZ155	103.29	.00	103.29
	FI000086	PKT825HEIBENPKZZZZZ406	64.06	.00	64.06
	FI000086	PKT825HEIBENPKZZZZZ421	103.61	.00	103.61
	FI000086	PKT825HEIBENPKZZZZZ422	211.98	.00	211.98
	FI000086	PKT825HEIBENPKZZZZZ423	60.33	.00	60.33
		Project/Work Order Total	1,160.42	.00	1,160.42
		Property Premiums - HEI			
	FI000292	PKI951HEIBENPKZZZZZ501	40.31	.00	40.31
		Project/Work Order Total	40.31	.00	40.31
		Liability Insurance Labor - HEI			
	FI000341	PKI950HEIBENPKZZZZZ150	2,283.88	.00	2,283.88
	FI000341	PKI950HEIBENPKZZZZZ155	195.93	.00	195.93
	FI000341	PKI950HEIBENPKZZZZZ406	177.08	.00	177.08
	FI000341	PKI950HEIBENPKZZZZZ421	281.95	.00	281.95
	FI000341	PKI950HEIBENPKZZZZZ422	581.60	.00	581.60
	FI000341	PKI950HEIBENPKZZZZZ423	507.89	.00	507.89
		Project/Work Order Total	3,736.63	.00	3,736.63
		Property Insurance Labor - HEI			
	FI000355	PKI951HEIBENPKZZZZZ150	119.79	.00	119.79
	FI000355	PKI951HEIBENPKZZZZZ155	11.13	.00	11.13
	FI000355	PKI951HEIBENPKZZZZZ406	11.56	.00	11.56
	FI000355	PKI951HEIBENPKZZZZZ421	18.33	.00	18.33

Req. BY: YAMASHITA, HARVEY Y
Run On: 02/09/05 at: 14:44:38
HAWAIIAN ELECTRIC COMPANY, INC.
Intercompany Billing Report (Project / Work Order) - XREF
Page: 9
Report: SUR9XCA
Version: 5.2.36.001A

186400 HAWAIIAN ELECTRIC INDUSTRIES
For the month of 01/2005

Project	Work Order	Account	Billable Amount	Corp Admin Rate	Total Billable
	FI0000355	PKI951HEIBENPKZZZZZ422	38.40	.00	38.40
	FI0000355	Project/Work Order Total	186.23	.00	186.23
	FI0000797	Tng & Mainland Trvl-HEI	30.67	.00	30.67
	FI0000797	PKC789HEIBENPKZZZZZ150	.68	.00	.68
	FI0000797	PKC789HEIBENPKZZZZZ155	2.40	.00	2.40
	FI0000797	PKC789HEIBENPKZZZZZ406	3.82	.00	3.82
	FI0000797	PKC789HEIBENPKZZZZZ421	7.99	.00	7.99
	FI0000797	PKC789HEIBENPKZZZZZ422	2.63	.00	2.63
	FI0000797	Project/Work Order Total	48.19	.00	48.19
	FI0000951	HEI - Treasury Mgmt System Maintenance	5,724.31	.00	5,724.31
		PKT825HEIBENPKZZZZZ501	5,724.31	.00	5,724.31
		Project/Work Order Total			
	AD0000135	HEI-Contracts	224.26	.00	224.26
	AD0000135	PNC844HEIBENPKZZZZZ150	10.32	.00	10.32
	AD0000135	PNC844HEIBENPKZZZZZ155	12.00	.00	12.00
	AD0000135	PNC844HEIBENPKZZZZZ406	19.10	.00	19.10
	AD0000135	PNC844HEIBENPKZZZZZ421	39.96	.00	39.96
	AD0000135	PNC844HEIBENPKZZZZZ422	17.95	.00	17.95
	AD0000135	Project/Work Order Total	302.95	.00	302.95
	CR0000048	Annual Report	1,435.51	.00	1,435.51
	CR0000048	POC756HEIBENPKZZZZZ150	1,252.16	.00	1,252.16
	CR0000048	POC756HEIBENPKZZZZZ155	82.33	.00	82.33
	CR0000048	POC756HEIBENPKZZZZZ406	140.07	.00	140.07
	CR0000048	POC756HEIBENPKZZZZZ421	266.99	.00	266.99
	CR0000048	POC756HEIBENPKZZZZZ422	98.42	.00	98.42
	CR0000048	Project/Work Order Total	1,771.16	.00	1,771.16
	R0009941	HEI HR/Benefits/Comp Suite	85.98	.00	85.98
	R0009941	PEZ778HEIBENPKZZZZZ150	76.70	.00	76.70
		PFB778HEIBENPKZZZZZ150			

Req. By: YAMASHITA, HARVEY Y
 Run On: 02/09/05 at: 14:44:38
 HAWAIIAN ELECTRIC COMPANY, INC.
 Intercompany Billing Report (Project / Work Order) - XREF
 Page: 10
 Report: SUB9XCA
 Version: 5.2.36.001A

186400 HAWAIIAN ELECTRIC INDUSTRIES
 For the month of 01/2005

Project	Work Order	Account	Billable Amount	Corp Admin Rate	Total Billable
R0009941		PFB778HEIBEP0001010155	1.88-	.00	1.88-
R0009941		PFB778HEIBEP0001010406	6.00	.00	6.00
R0009941		PFB778HEIBEP0001010421	9.56	.00	9.56
R0009941		PFB778HEIBEP0001010422	20.00	.00	20.00
R0009941		PFB778HEIBEP0001010423	6.27	.00	6.27
		Project/Work Order Total	202.63	.00	202.63

GL / Code Block Total 15,209.69 .00 15,209.69

Non-Productive Wages
Account 184030

2005

Cost Pool (\$000):

Non-Productive Wages		11,558
	A	<u>11,558</u>

Cost Base (000 hrs):

Total Company Productive Hours	B	<u>3,022</u>
Rate	A / B	<u>\$ 3.82</u>

Payroll Taxes
Account 184010

2005
(\$000)

Cost Pool:

Nonlabor	D	8,460	
Less Net Flex	C	170	←

E = D - C	<u>8,290</u>
------------------	--------------

Cost Base:

Total Productive Labor	F	98,823
------------------------	----------	--------

Less Police Labor	G	74
Total Company Productive Labor	H = F - G	<u>98,749</u>

Rate	I = E / H	<u>8.39%</u>
-------------	------------------	--------------

Net Flex	A	1,908
Payroll Tax Rate (FUTA, SUTA, FICA)	B	8.91%

C = A x B	<u>170</u>
------------------	------------

HECO
Payroll Taxes
2005

FUTA:

<u>A</u>	<u>B</u>	<u>C</u>	<u>D = A x B x C</u>	<u>Rounded</u>
<u>Rate</u>	<u>\$ Max</u>	<u>Number of Emp</u> <u>(at yearend)</u>	<u>Taxes</u>	<u>(\$000)</u>
0.8%	7,000	1,491	83,496	83 D / 1000

(Rates and Max from HEI Budget Instructions)

SUTA:

<u>E</u>	<u>F</u>	<u>G</u>	<u>H = E x F x G</u>	<u>Rounded</u>
<u>Rate</u>	<u>\$ Max</u>	<u>Number of Emp</u> <u>(at yearend)</u>	<u>Taxes</u>	<u>(\$000)</u>
0.61%	32,200	1,491	292,862	293 H / 1000

FICA:

<u>Pay Date</u>	<u>I</u> <u>Estimated</u> <u>Gross Pay</u>	<u>J</u> <u>Effective</u> <u>Rate¹</u>	<u>K = I x J</u> <u>Total</u> <u>FICA</u>
1/11	\$1,888,695	7.50%	\$141,718
1/25	4,329,050	7.50%	324,829
2/8	4,356,230	7.50%	326,868
2/22	4,397,000	7.50%	329,927
3/7	4,302,026	7.50%	322,801
3/21	4,159,565	7.50%	312,112
4/4	4,180,613	7.46%	312,012
4/18	4,370,000	7.46%	326,146
5/2	4,370,000	7.46%	326,146
5/16	4,365,000	7.46%	325,773
5/30	4,365,000	7.46%	325,773
6/13	4,336,636	7.46%	323,656
6/27	4,329,545	7.46%	323,127
7/11	4,417,249	7.32%	323,307
7/25	4,475,714	7.32%	327,587
8/8	4,351,985	7.32%	318,531
8/22	4,228,261	7.32%	309,475
9/5	4,223,790	7.32%	309,148
9/19	4,205,909	7.32%	307,839
10/3	4,205,910	6.71%	282,169
10/17	4,364,286	6.71%	292,795
10/31	4,364,290	6.71%	292,795
11/14	4,276,156	6.71%	286,882
11/28	4,266,360	6.71%	286,225
12/12	4,237,408	6.71%	284,283
12/26	4,225,000	6.71%	283,450
1/9	2,112,500	7.50%	158,511
	0		0
	111,704,179		8,083,885

Rounded to \$000

8,084 **ΣK / 1000**

Total payroll taxes

8,460 **L = (D + H + ΣK) / 1000**

¹ % based on 2003 Form 941

2005 Payroll

<u>Month</u>	<u>A</u> Payroll (\$000)	<u>B</u> Days	<u>C = A / B x 1000</u> Payroll \$ Per Day
Dec 2004	8,688	23	377,739
Jan	9,091	21	432,905
Feb	8,794	20	439,700
Mar	9,567	23	415,957
Apr	9,177	21	437,000
May	9,603	22	436,500
Jun	9,525	22	432,955
Jul	9,399	21	447,571
Aug	9,725	23	422,826
Sep	9,253	22	420,591
Oct	9,165	21	436,429
Nov	9,386	22	426,636
Dec	9,295	22	422,500
		260	5,171,569

+ F
avroll
38,695
9,050
6,230
7,000
2,026
9,565
0,613
0,000
0,000
5,000
5,000
6,636
9,545
7,249
5,714
1,985
8,261
3,790
5,909
5,910
4,286
4,290
6,156
3,360
7,408
5,000
2,500
-
14,179

CA-IR-491

Ref: HECO T-13, pages 27-28, & HECO-1312 (HECO Billings to HEI).

Please explain HECO's accounting for the labor and nonlabor costs billed to HEI and provide a copy of any accounting policies or procedures that discuss such accounting.

HECO Response:

Attached is a memo regarding Accounting for Non-Regulated and Billable Activities and Accounting for Start-Up Activities. The second page of the memo (page 3 attached) provides the procedures related to costs incurred in support of HEI's non-utility affiliates.

September 14, 2004

To: HECO Officers
Direct Reports to Officers
HELCO and MECO Presidents
HELCO and MECO Accounting Managers

From: Ernest Shiraki

Subject: Accounting for Non-Regulated and Billable Activities
Accounting for Start-Up Activities

Discussed herein are accounting policies and procedures related to non-regulated, billable, and start-up activities. Please carefully read and follow the policies and procedures, which are designed to help insure that we comply with financial accounting and regulatory requirements in the conduct of our business. Please disseminate this information to those in your area of responsibility who need to be aware of these policies and procedures. If there are any questions regarding the information discussed herein, please contact the Controller or the Director of Corporate and Property Accounting.

Accounting for Non-Regulated and Billable Activities

Costs incurred by HECO, HELCO and MECO (utility companies) for non-regulated activities and for work in support of HEI's non-utility affiliates (e.g. HEI, ASB and HEI Power Corp.) must be properly charged to appropriate code blocks, projects or workorders as discussed below. We need to insure that regulated operations do not subsidize the operations of HEI's non-utility affiliates, or any utility company activity with respect to non-regulated services and products.

Criteria generally descriptive of non-regulated activities include the following:

1. the activities are not generally considered to be required for utility operations, i.e. the production, purchase, transmission, distribution and sale of electricity;
2. the volume, frequency and value of the services provided are more than incidental;
3. the related revenue and costs have not been reviewed by the PUC in a rate case proceeding;
4. there are no plans to request PUC approval for the activities and for the inclusion of related revenues and costs in the setting of electric rates.

All costs and revenues associated with non-regulated activities must be tracked and classified as such. Anyone involved in activities described by one or more of the criteria above should consult with the Controller or Director of Corporate and Property Accounting to determine if such activities should be classified as regulated or non-regulated. For those activities determined to be non-regulated, specific and unique charge numbers should be established for each non-regulated activity. The charge numbers are projects and/or workorders that have a code block with an indicator segment of "BN" - Billable non-regulated revenue and expense or "NN" - Non-billable non-regulated expense. All costs related to the non-regulated activity should be charged to the established projects and/or workorders.

All costs incurred by the utility companies for work in support of HEI's non-utility affiliates should be authorized under an existing Administrative Services

~~Agreement between the utility and the non-utility affiliates and charges determined~~

Accounting for Start-up Activities

Start-up activities are broadly defined as those one-time activities related to opening a new facility, introducing a new product or service, conducting business in a new territory, conducting business with a new class of customer or beneficiary, initiating a new process in an existing facility, or commencing some new operation. Start-up activities also include activities related to organizing a new entity. The accounting standards require that one-time costs of start-up activities be charged by the benefiting company to operation and maintenance expense as incurred, rather than to capital. Anyone involved in start-up activities should consult with the Controller or Director of Corporate and Property Accounting to discuss and determine the appropriate charging of start-up costs.

CA-IR-492

Ref: Response to CA-IR-101.

Please provide the underlying data (i.e., dollar amounts for each capital structure item) for the capital structure ratios contained in this response.

HECO Response:

Please see attached schedule. The underlying data for HECO is per books while the underlying data for HEI is as presented in SEC filings 10-Q and 10-K.

Supporting Data for Capital Structure Ratios
(\$ in thousands)

HECO	2004	2003	2002	2001	2000	1999
Years ended December 31						
Short-term borrowings	61,460	20,700	13,700	42,697	91,362	89,213
Hybrids	30,000	60,000	60,000	60,000	60,000	60,000
Long-term debt	436,503	434,824	432,597	407,676	390,218	369,018
Preferred stock	22,293	22,293	22,293	22,293	22,293	22,293
Common equity	640,892	582,562	570,480	539,060	494,295	482,549
	<u>1,191,148</u>	<u>1,120,379</u>	<u>1,099,070</u>	<u>1,071,726</u>	<u>1,058,168</u>	<u>1,023,073</u>
HEI						
Years ended December 31	2004	2003	2002	2001	2000	1999
Short-term borrowings	76,611	-	-	-	104,398	151,833
Long-term debt, net *	1,166,735	1,064,420	1,106,270	1,145,769	1,088,731	977,529
HEI- and HECO-obligated preferred securities of trust subsidiaries *	-	200,000	200,000	200,000	200,000	200,000
Preferred stock of subsidiaries	34,405	34,406	34,406	34,406	34,406	34,406
Common stock equity	1,210,945	1,089,031	1,046,300	929,665	839,059	847,586
	<u>2,488,696</u>	<u>2,387,857</u>	<u>2,386,976</u>	<u>2,309,840</u>	<u>2,266,594</u>	<u>2,211,354</u>

* Effective 1/1/04, HECO-obligated preferred securities of trust subsidiaries were deconsolidated.
For financial statement purposes in 2004, HEI reflects the long-term debt payable to the trust in long-term debt.

CA-IR-493

Ref: Response to CA-IR-101.

Please provide a schedule showing the capital structure ratios (amounts of capital and percentages) for HECO on a consolidated (i.e., not just Oahu only) basis for the period 1999-2004.

HECO Response:

Please see attached schedule for the capital structure per books of HECO on a consolidated basis.

Capital Structure Ratios
HECO (Consolidated)

Years ended December 31	2004	2003	2002	2001	2000	1999
Short-term borrowings	4.7%	0.3%	0.3%	2.8%	6.5%	6.3%
Hybrids	2.6%	5.6%	5.7%	5.7%	5.7%	5.9%
Long-term debt	37.1%	39.2%	39.9%	39.3%	38.4%	38.1%
Preferred stock	1.8%	1.9%	1.9%	2.0%	2.0%	2.0%
Common equity	53.7%	52.9%	52.2%	50.3%	47.4%	47.6%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Supporting Data for Capital Structure Ratios
HECO (Consolidated)
(\$ in thousands)

Years ended December 31	2004	2003	2002	2001	2000	1999
Short-term borrowings	88,568	6,000	5,600	48,297	113,162	107,013
Hybrids	50,000	100,000	100,000	100,000	100,000	100,000
Long-term debt	702,735	699,420	705,270	685,269	667,731	646,031
Preferred stock	34,293	34,293	34,293	34,293	34,293	34,293
Common equity	1,017,104	944,442	923,256	877,154	825,012	806,103
	1,892,700	1,784,155	1,768,419	1,745,013	1,740,198	1,693,440

CA-IR-494

Ref: Response to CA-IR-101.

Please provide two schedules showing the capital structure ratios (amounts of capital and percentages) for Maui Electric Company (MECO) and Hawaii Electric Light Company (HELCO) for the period 1999-2004.

HECO Response:

Please see attached schedule for the capital structure per books of MECO and HELCO.

Maui Electric Company (MECO)
Capital Structure Ratios
(\$ in thousands)

Years ended December 31	2004	2003	2002	2001	2000	1999
Short-term borrowings	-2.3%	0.0%	0.0%	0.0%	0.4%	-2.5%
Hybrids	2.9%	5.6%	5.6%	5.7%	5.8%	6.0%
Long-term debt	42.2%	40.4%	42.4%	43.4%	43.8%	45.6%
Preferred stock	1.5%	1.4%	1.4%	1.4%	1.5%	1.5%
Common equity	55.6%	52.6%	50.7%	49.4%	48.5%	49.4%
	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>

Supporting Data for Capital Structure Ratios

Years ended December 31	2004	2003	2002	2001	2000	1999
Short-term borrowings	(7,750)	(25,500)	(23,000)	(7,000)	1,500	(8,400)
Hybrids	10,000	20,000	20,000	20,000	20,000	20,000
Long-term debt	143,778	143,729	151,680	151,631	151,582	151,200
Preferred stock	5,000	5,000	5,000	5,000	5,000	5,000
Common equity	189,413	187,194	181,372	172,439	167,816	163,835
	<u>340,441</u>	<u>330,423</u>	<u>335,052</u>	<u>342,070</u>	<u>345,898</u>	<u>331,635</u>

Hawaii Electric Light Company (HELCO)
Capital Structure Ratios
(\$ in thousands)

Years ended December 31	2004	2003	2002	2001	2000	1999
Short-term borrowings	9.7%	3.2%	4.5%	3.8%	6.0%	7.7%
Hybrids	2.8%	6.0%	6.0%	6.0%	6.0%	5.9%
Long-term debt	33.7%	36.3%	36.2%	38.0%	37.5%	37.1%
Preferred stock	1.9%	2.1%	2.1%	2.1%	2.1%	2.1%
Common equity	51.9%	52.4%	51.3%	50.0%	48.5%	47.2%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Supporting Data for Capital Structure Ratios

Years ended December 31	2004	2003	2002	2001	2000	1999
Short-term borrowings	34,850	10,800	14,900	12,600	20,300	26,200
Hybrids	10,000	20,000	20,000	20,000	20,000	20,000
Long-term debt	120,908	120,867	120,993	125,962	125,931	125,811
Preferred stock	7,000	7,000	7,000	7,000	7,000	7,000
Common equity	186,505	174,639	171,404	165,655	162,901	159,719
	359,263	333,306	334,297	331,217	336,132	338,730

CA-IR-495

Ref: HECO Response to CA-IR-36, Attachment 3.

According to the Attachment at note 1, "Cost to supplement the workforce increased by \$1,209,171 in 2004 compared to 2003." Please provide the following information:

- a. What are the comparable amounts for the proposed 2005 test year for each row of Attachment 3?
- b. For what reasons should the Company's projected "cost to supplement the workforce" not decline in direct proportion to the increased workforce staffing levels being added by HECO for production operations and production maintenance?
- c. Please provide complete copies of all studies, workpapers, analyses, projections, correspondence and other documents associated with your response to part b.

HECO Response:

- a. The 2005 test year forecast for outside services is not developed according to the breakdown provided in CA-IR-36, Attachment 3, but rather is forecasted based on the types of work requiring outside services as shown on various pages in response to CA-IR-2, HECO T-6. The actual amounts broken down by supplemental workforce, specialized skills, and "Other" are based on actual transaction details.
- b. HECO anticipates concurrent and multiple unit outages consisting of Planned Outages (PO), Maintenance Outages (MO) and Forced Outages (FO) to continue into the foreseeable future. In order to deal with concurrent work demands, contractors will continue to provide supplemental skilled and non-skilled labor. The cost to supplement the workforce depends on many factors, such as the number generating units that are down for PO, MO and/or FO maintenance, other concurrent operational maintenance on running units, facility maintenance, etc., and would not be expected to decline in direct proportion to the increase in workforce staffing levels.

- c. With regard to supplementing the workforce, there are no studies or analysis performed to determine the impact of increasing staff on reducing the need for outside services to supplement the workforce. The analysis of the impact of increasing staff on reducing the need for outside services to supplement the workforce is not available.

CA-IR-496

Ref: HECO Response to CA-IR-37, Attachment 1.

According to the "Operation" expense row, HECO has been able to effectively operate its fleet of generating units at a relatively constant annual expense level of \$19.4 to \$20.2 million in each of the past four years. Given no change in the units within the Company's owned generating unit fleet, please explain each known reason why, in the 2005 test year, it is predicted that such expenses will need to increase by more than 20 percent over this historically stable expense level. Provide complete copies of (or references to) all documents associated with your response.

HECO Response:

The increase in Operation expenses in 2005 compared to the past four years is attributed to an increase in operations staffing to fully utilize the capabilities of Honolulu Units 8 & 9 (H8&9), and Waiau Units 3 & 4 (W3&4). The additional staffing will increase availability of H8&9 and W3&4 from 16 hours per day, 5 days per week (16x5) to 24 hours per day, 7 days per week (24x7).

References to this discussion can be found at:

- HECO T-6, pages 8, 9, and 23-25
- HECO T-6 Exhibits - HECO-606 (2004 AOS), HECO-607 (System Peaks), HECO-608 (CT Service Hour), HECO-609 (Cycling Unit Service Hour), HECO 619 (2003 vs 2005 Body Count), HECO-620 (Operations Labor OT)
- CA-IR-1, HECO T-6, page 3, Attachment 5, page 2 of 6 (Honolulu Operators), page 4 of 6 (Waiau Operators)
- CA-IR-586 - Operations Position Descriptions

Please refer to HECO T-6 on pages 8, 9, and pages 23-25, and associated exhibits HECO-system load has increased significantly in the past two years and is expected to grow into the foreseeable future.

CA-IR-497

Ref: HECO Response to CA-IR-41, Attachment 3.

This response indicates that actual versus budgeted 2003 overhaul costs, while differing considerably among units/projects, were relatively close to budget overall, with a variance of only \$132,861. However, "All other costs" experienced a favorable variance of more than \$5.9 million. Please provide a detailed analysis of this favorable variance by RA and Cost Element, with explanations of all work that was deferred or avoided.

HECO Response:

A correction is necessary in HECO's response to CA-IR-41, Attachment 3 which was filed on March 16, 2005. The 2003 Budget amount shown on Attachment 3 was extracted using an incorrect data file. Although the 2003 Budget overhaul cost shown on Attachment 3 was correct, the total "All Other Costs" was incorrect. The corrected 2003 Budget information is shown on the revised CA-IR-41, Attachment 3, included as page 2 to this response. The "All Other Costs" variance as corrected is \$2.7M, where the actual 2003 costs exceed the 2003 budget.

Hawaiian Electric Company Inc.

2005 TEST YEAR

2003 O&M Overhaul Projects (As Corrected - CA-IR-43, ATTACHMENT 3)

<u>Project #</u>	<u>Project Description</u>	<u>2003 Budget</u>	<u>2003 Actual</u>	<u>Variance</u>	<u>Var Expl</u>
<u>Operation-</u>					
P0000252	Waiau 5 2002 Overhaul	0	80,618	80,618	
Operation Total		0	80,618	80,618	
<u>Maintenance-</u>					
P0000138	Honolulu 9 Overhaul	777,700	2,537,334	1,759,634	A
P0000139	Kahe 4 Overhaul	0	(100,869)	(100,869)	B
P0000244	Waiau 4 2001 Overhaul	0	6,654	6,654	
P0000247	Kahe 2 2001 Overhaul	0	107	107	
P0000248	Kahe 3 2001 Overhaul	0	(51,567)	(51,567)	
P0000249	Waiau 3 2002 Overhaul	2,128,987	511	(2,128,476)	C
P0000250	Kahe 6 2002 Overhaul	0	1,897	1,897	
P0000251	Kahe 1 2002 Overhaul	0	9,245	9,245	
P0000252	Waiau 5 2002 Overhaul	210,000	1,177,916	967,916	D
P0000519	Kahe 5 Overhaul (2003)	3,394,942	366,499	(3,028,443)	E
P0000520	Kahe 4 Overhaul (2003)	0	3,658	3,658	
P0000521	Waiau 8 Overhaul (2003)	2,036,741	0	(2,036,741)	F
P0000522	Waiau 7 Overhaul (2003)	1,689,081	1,866,027	176,946	G
P0000523	Honolulu 8 Overhaul (2003)	1,806,022	4,900,033	3,094,011	H
P0000655	Kahe 4 Overhaul (2004)	0	1,378,271	1,378,271	I
Maintenance Total		12,043,473	12,095,716	52,243	
Total		12,043,473	12,176,334	132,861	
All Other Costs		30,176,469	32,875,895	2,699,426	
Grand Total Production O&M Expense		42,219,942	45,052,229	2,832,287	

Explanations-

- A** H-9 Overhaul originally scheduled from 10/04/02 to 12/20/2002. Actual Overhaul dates 11/30/2002 to 3/23/2003. Budgeted amount was for carry over cost from 2002. Actuals reflect overhaul costs.
- B** K-4 Reclass of costs originally charged as O&M but later determined to be Capital
- C** W-3 Overhaul originally scheduled from 10/24/03 to 12/20/2003. Overhaul moved to 2004 due to continuation of H-9 and W-5 overhauls from 2002 and advancement of the K-4 overhaul into 2003 to rewind the generator rotor due to a field ground.
- D** W-5 actual overhaul dates from 9/12/02 to 3/23/03, extended due to generator repairs. Actuals reflect higher scope in 2003 than anticipated.
- E** K-5 Overhaul originally scheduled from 3/28/03 to 7/03/03. Overhaul moved to 2004 due to continuation of H-9 and W-5 overhauls from 2002 and the advancement of the K-4 overhaul into 2003 to rewind the generator rotor due to a field ground.

Explanations -

- F** W-8 Overhaul originally scheduled from 7/18/03 to 8/30/03. Overhaul moved to 2004 due to H-8 and W-5 overhauls carried over from 2002 and K-4 overhaul moved into 2003 to rewind generator rotor due to field ground.
- G** W-7 Overhaul actual cost reflects increased scope due to more insulation and generator work than anticipated.
- H** H-8 Overhaul actual cost reflects increased scope of work on the generator, boiler waterwall repairs, boiler insulation work, non-destructive testing (NDT), and turbine repairs.
- I** K-4 moved from 2004 into 2003, due to the need to address the generator field ground.

CA-IR-498

Ref: HECO Response to CA-IR-40, pages 6, 7 and 8.

The spreadsheet attached to the response summarizes boiler feed pump costs for reheat generating units and boiler casing, refractory repairs and duct repairs on the cycling units. Please respond to the following:

- a. Confirm that the amounts shown are non-labor charges or provide a breakdown of any labor amounts included in such costs.
- b. Describe the specific work typically required to be done in each activity; boiler feed pump, casing, refractory and duct repairs.
- c. Explain how increased cycling and startup frequencies impact the quantity and severity of such repairs.
- d. Explain whether boiler casing and refractory repairs of the magnitude expended on Waiau 3, Honolulu 8 and Honolulu 9 in recent years are reasonably anticipated for each of the Company's other cycling units.
- e. Provide the planned schedule of boiler casing and refractory repairs by unit for each year 2005 through 2008.

HECO Response:

- a. The amounts shown in HECO's response to CA-IR-40, pages 6 – 8 include both labor and non-labor charges. See attached pages 4 – 5 in this response for the same itemized list of work, but including only the labor charges. Note that the 2005 Test Year column shows zero charges. For these types of repairs the forecasted labor component is not identified at this level of detail. In addition as of 4/30/05, no labor charges have been recorded for the 2005 Test Year items.
- b. Boiler feed pump volutes and motors are sent to an outside vendor equipped to inspect, repair and test these critical components. Volute are shipped to the mainland, and motors are sent to a local vendor equipped to perform industrial motor repairs. The actual scope of

inspection, repair and testing depends on the condition of the equipment after it is disassembled at the factory.

Inputs that determine the scope of boiler casing refractory and duct repairs come from many sources including hot spots identified during operation; inspections performed during PO's, MO's and/or FO's; need to access to internal components of the boiler; asbestos abatement; etc. Unanticipated problems that may impact safety or reliability are usually performed as an unforecasted item, and depending on the scope, may impact outage duration.

All of the HECO steam units were originally designed for base load operation. As a result,

\$535,000 of which \$25,000 represent material cost. The remaining amount of \$510,000 will be contracted on a turnkey basis; therefore, expenses are classified as outside services.

- e. The planned schedule of boiler casing and refractory repairs by unit for 2005 is provided on page 7 of HECO's response to CA-IR-40. For 2005, W4 will undergo major boiler casing and refractory repairs. From 2006 through 2008, no major boiler casing and refractory repairs are anticipated. Although not scoped out in detail, it is anticipated that W5 will undergo major boiler casing, refractory and duct repairs when the horizontal shaft air preheater is replaced in 2009. As explained in HECO's response to CA-IR-296, from year to year, costs are shifted between activities depending on what is required to ensure safe, compliant and reliable operations. A comparison of planned versus actual outage schedules in HECO's responses to CA-IR-41, CA-IR-42, and CA-IR-43 (Revised 4/21/05) also show shifts from a unit outage perspective. HECO does its best to forecast anticipated work with the realization through experience that resources will be redirected to address unanticipated needs to maintain safe, compliant and reliable operation.

Hawaiian Electric Company, Inc.
Rate Case - Test Year 2005
Select Work - Labor Charges

Equipment	Account Code	2000	2001	2002	2003	2004	2005
REHEAT UNITS							
K61 BFP Volute Replacement	PIT257K06NEP0000250			\$7,552			
K62 BFP Motor Service	PIT257K06NEP0000015	\$0					
K61/K62 BFP Motor Service	PIT257K06NEP0000250			\$21,719			
K6 BFP Volute Replacement (201 only)	PIT258K06NEP0000844						\$0
K6 BFP Motor Repairs (501only)	PIT258K06NEP0000844						\$0
K51 BFP Motor Service	PIT257K05NEP0000140	\$5,213					
K52 BFP Motor Repairs	PIL259K05NENPIZZZZZ			\$6,371			
K51 BFP Motor Service	PIL257K05NENPIZZZZZ			\$1,110			
K52 BFP Motor Purchase & Install	PIL213K05NIP1429000					\$269	
K52 BFP Motor Purchase & Install	PIT213K05NIP1429000					\$4,282	
K52 BFP Motor Service	PIL257K05NEP0000519					\$4,253	
K52 BFP Motor Replacement-Removal	PIT213K05NRP1429000					\$93	
K41 BFP Volute Replacement	PIL258K04NENPIZZZZZ		\$8,309				
K41 BFP Volute Replacement	PIT259K04NEP0000655					\$12,938	
K4 BFP Volute Replacement (201 only)	PIT258K04NEP0000845						\$0
K4 BFP Motor Repairs (501only)	PIT258K04NEP0000845						\$0
K32 BFP Motor Purchase & Install	PIL259K03NIP1870000		\$6,228				
K32 BFP Motor Repairs	PIT258K03NEP0000248			\$5,410			
K32 BFP Volute Replacement	PIL258K03NENPIZZZZZ				\$12,854		
K32 BFP Volute Replacement	PIL259K03NENPIZZZZZ				\$7,956		
K31 BFP Motor Repairs	PIT258K03NENPIZZZZZ				\$7,745		
K32 BFP Motor Repairs	PIL258K03NENPIZZZZZ				\$9,341		
K31 BFP Volute Replacement	PIL258K03NENPIZZZZZ				\$18,933		
K22 BFP Volute Replacement	PIL258K02NENPIZZZZZ		\$12,644				
K21 BFP Volute Replacement	PIL258K02NENPIZZZZZ				\$11,332		
K21 & K22 BFP Motor Service	PIT257K02NEP0000247			\$10,374			
K12 BFP Motor Service	PIT257K01NEP0000012	\$6,589					
K11& K12 BFP Motor Service	PIT257K01NEP0000251			\$14,556			
K12 BFP Volute Replacement	PIL259K01NENPIZZZZZ			\$11,910			
K11 BFP Motor Repairs	PIL259K01NENPIZZZZZ				\$9,271		
K12 BFP Motor Repairs	PIL258K01NENPIZZZZZ				\$3,241		
K1 BFP Volute Replacement (201 only)	PIT258K01NEP0000846						\$0
K1 BFP Motor Repairs (501only)	PIT258K01NEP0000846						\$0
W81 & W82 BFP Motor Service	PIT257W08NEP0000142	\$15,966					
W81 BFP Volute Replacement	PIX258W08NENPIZZZZZ	\$6,180					
W81 BFP Volute Replacement	PIX259W08NENPIZZZZZ	\$6,180					
W82 BFP Motor Repairs	PIX259W08NENPIZZZZZ	\$15,097					
W81 BFP Motor Repairs	PIX259W08NENPIZZZZZ					\$13,004	
W82 BFP Volute Replacement	PIT259W08NEP0000521					\$10,371	
W71 & W72 BFP Motor Service	PIT257W07NEP0000141	\$11,707					
W72 BFP Volute Replace	PIT258W07NEP0000141	\$8,484					
W71 & W72 BFP Motor Service	PIT257W07NEP0000522					\$1,398	
W72 BFP Motor Repairs	PIX258W07NENPIZZZZZ	\$19,321					
CYCLING (NON-REHEAT) UNITS							
Waiau 3 boiler casing and refractory rep	PIX259W03NPIZZZZZ	\$725	\$390			\$7,535	
Waiau 3 boiler casing and refractory rep	PIT258W03NEP0000249					\$28,665	
Waiau 3 boiler draft duct repairs	PIX259W03NENPIZZZZZ		\$946		\$5,437	\$18,371	
Waiau 3 boiler draft duct repairs	PIT258W03NEP0000249					\$39,562	
Waiau 4 boiler casing and refractory rep	PIX259W04NENPIZZZZZ	\$0	\$62	\$9,854			
Waiau 4 boiler casing and refractory rep	PIT259W04NEP0000244		\$38,911	\$1,257			
Waiau 4 boiler casing and refractory, duct repairs	PIT259W04NEP0000847						\$0

Hawaiian Electric Company, Inc.
Rate Case - Test Year 2005
Select Work - Labor Charges

Equipment	Account Code	2000	2001	2002	2003	2004	2005
Waiau 5 boiler casing and refractory rep	PIX259W05NENPIZZZZZ	\$2,907		\$56,158	\$3,534	\$2,045	
Waiau 5 boiler casing and refractory rep	PIT259W05NEP0000252				\$521		
Waiau 5 boiler draft duct repairs	PIX259W05NENPIZZZZZ					\$556	
Waiau 5 boiler draft duct repairs	PIT259W05NEP0000252				\$4,527		
Waiau 6 boiler casing and refractory rep	PIX259W06NENPIZZZZZ	\$3,851	\$10,236	\$3,114	\$7,540	\$5,057	
Waiau 5 boiler draft duct repairs	PIT259W06NEP0000243		\$61,533				
Waiau 6 boiler draft duct repairs	PIX259W06NENPIZZZZZ			\$3,838	\$202		
Honolulu 8 boiler casing and refractory repairs	PIT259H08NEP0000137	\$19,482	\$389		\$103,181		
Honolulu 8 boiler casing and refractory repairs	PIN259H08NENPIZZZZZ						
Honolulu 8 boiler casing and refractory repairs	PIT257H08NEP0000523						
Honolulu 9 boiler casing and refractory repairs	PIT259H09NENPIZZZZZ	\$8,115		\$2,194	\$367	\$68,337	
Honolulu 9 boiler casing and refractory repairs	PIX257H09NENPIZZZZZ						
Honolulu 9 boiler casing and refractory repairs	PIT258H09NEP0000138						
Honolulu 9 boiler casing and refractory repairs	PIT259H09NEP0000138						
SUMMARY		\$129,817	\$139,648	\$155,417	\$205,982	\$216,736	\$0

CA-IR-499

Ref: HECO Response to CA-IR-43, pages 1 and 2.

According to the response to part b, "Therefore, another revision to the 2005 Planned Maintenance Schedule with Capital and O&M project updates will be forthcoming, and will be provided (with a comparison of the schedule and cost impacts) after it is finalized and approved." Please respond to the following:

- a. Confirm that HECO's proposed test year level of production maintenance expense in its filing is based upon the 1/12/04 Planned Maintenance Schedule (HECO-627) and actual projected overhaul project costs, as summarized on page 6 of the response, with no normalization adjustments made for ratemaking purposes.
- b. Explain whether the Company intends to revise its prefiled revenue requirement evidence for the referenced "project updates" referenced on page 2 of the response.
- c. Please explain whether the January 12, 2004 Planned Maintenance Schedule, the February 3, 2005 revision to the Planned Maintenance Schedule, or the "further revisions" to be made (as referenced at the bottom of page 2), are most indicative of normal, ongoing production maintenance expenses that should be recognized for ratemaking purposes.
- d. Provide complete copies of all studies, reports, analyses, workpapers, projections, correspondence and other documents associated with your response to part c.

HECO Response:

- a. The revised maintenance schedule and related cost information were filed in the updated response to CA-IR-43, filed 4-21-05. There are "normal" variations in the maintenance overhaul schedule, as was explained in the response to CA-IR-44, filed 4-14-05, and it would not be appropriate to classify one schedule as "normal", with the implication that other schedules are then deemed to be "abnormal". Also, labor and contract labor resources can be used to perform scheduled overhauls, planned maintenance outages and other maintenance on generating units.

In general, HECO's position is that Other Production O&M expenses, in total, as presented in HECO T-6, represent a reasonable, on-going level of expenses for the 2005 test

year. Therefore, HECO does not plan to change the test year estimates, except to reflect the changes indicated in the May 5, 2005 revenue requirements update:

1. the change in betterment accounting, as agreed to by letter filed March 29, 2005, and as approved in Decision and Order No. 21738, filed April 14, 2005, in Docket No. 03-0206 (see response to CA-IR-416);
2. the removal of expenses for utility-owned CHP systems from the test year (see response to CA-IR-265);
3. the inclusion of normalized expenses for HECO-leased DG units at HECO substations (see response to CA-IR-441 and Attachment 1A to 5/5/05 update);
4. the removal of Sun Power for Schools Non-Labor expenses (see response to CA-IR-186); and
5. a possible adjustment to standard labor rates to reflect the difference in the percentage of overtime in actual 2003 labor costs (used as the basis for the standard labor rates) versus the percentage of overtime hours in labor hours estimated for purposes of the 2005 test year.

That is not to say that Other Production O&M expenses will not continue to increase in the future, due to the factors addressed at length in HECO T-6 and the responses to numerous information requests.

Moreover, if revisions to individual expense items are proposed by other parties based

on actual 2005 conditions (for example, some vacancies are still in the process of being filled as was indicated in response to CA-IR-48), HECO may propose revisions to other items (such as overhaul expenses) based on actual 2005 conditions (see response to CA-IR-43).

- c. Please refer to the discussion in HECO's responses to CA-IR-44 and CA-IR-296, which were filed with the CA and the DOD on April 27, 2005, and the discussion in subpart a. above. Given the increasing age of the generating units, and the need to run the units harder due to reduced reserve margins, the trend is towards higher maintenance overhaul costs.
- d. Please refer to part c. above.

CA-IR-500

Ref: HECO Response to CA-IR-43, page 11.

Please provide the following more detailed information regarding the cost table by Project number set forth on page 11:

- a. Labor and non-labor costs by RA for each project listed in the 1/12/04 and in the 2/3/05 maintenance schedules.
- b. When the "further revisions" referenced at page 2 are finalized and approved, append another column to the response to part a incorporating the same cost breakdown by RA details.

HECO Response:

- a. See page 2 for the labor and non-labor cost for each project listed in the 1/12/04 and in the 2/3/05 maintenance schedule. Cost shown is for RA PIT, Production Traveling Maintenance. Note that totals reconcile to CA-IR-43 (revised 4-21-05), page 6 and CA-IR-180, page 8.
- b. See page 2 for the revised cost based on the 4/8/05 maintenance schedule. As in a. above, the totals can be reconciled to CA-IR-43 (revised 4-21-05), page 6 and CA-IR-180, page 8. The total do not include certain betterment costs that will now be expensed as indicated in the response to CA-IR-416. The betterment costs expected to be expensed in 2005 are shown on page 3 (REVISED 4-28-05) filed with the Consumer Advocate and the Department of Defense on April 28, 2005.

Hawaiian Electric Company Inc.
Rate Case - Test Year 2005
2005 O&M Overhaul Projects

<u>Project #</u>	<u>Cost Type</u>	<u>1/12/04 Sch 2005 Test Yr</u>	<u>2/03/05 Sch 2005 Projected</u>	<u>4/08/05 Sch 2005 Projected</u>
<u>P0000650 - Kahe 2 OH (RA=PIT)</u>				
	Direct Labor	0	584,200	584,200
	Direct Non-Labor	481,500	1,416,700	1,416,700
	Indirect Lab/Non-Lab	0	419,300	419,300
		481,500	2,420,200	2,420,200
<u>P0000844 - Kahe 6 OH (RA=PIT)</u>				
	Direct Labor	803,885	804,100	804,100
	Direct Non-Labor	1,458,500	1,558,000	1,558,000
	Indirect Lab/Non-Lab	628,443	576,800	576,800
		2,890,828	2,938,900	2,938,900
<u>P0000845 - Kahe 4 OH (RA=PIT)</u>				
	Direct Labor	1,149,858	0	0
	Direct Non-Labor	1,545,800	0	0
	Indirect Lab/Non-Lab	854,028	0	0
		3,549,686	0	0
<u>P0000846 - Kahe 1 OH (RA=PIT)</u>				
	Direct Labor	552,826	0	0
	Direct Non-Labor	930,500	0	0
	Indirect Lab/Non-Lab	425,364	0	0
		1,908,690	0	0
<u>P0000847 - Waiau 4 OH (RA=PIT)</u>				
	Direct Labor	1,016,020	1,016,000	1,016,000
	Direct Non-Labor	1,955,700	2,031,000	2,031,000
	Indirect Lab/Non-Lab	745,198	728,600	728,600
		3,716,918	3,775,600	3,775,600
<u>P0000937 - Waiau 9 Maj Insp (RA=PIT)</u>				
	Direct Labor	187,000	250,500	429,300
	Direct Non-Labor	798,000	2,223,300	2,501,900
	Indirect Lab/Non-Lab	17,540	163,500	281,300
		1,002,540	2,637,300	3,212,500
<u>P0000938 - Waiau 10 Maj Insp (RA=PIT)</u>				
	Direct Labor	187,000	150,700	307,200
	Direct Non-Labor	798,000	2,756,000	3,142,300
	Indirect Lab/Non-Lab	17,540	108,200	215,300
		1,002,540	3,014,900	3,664,800
<u>P0000521 - Waiau 8 OH (RA=PIT)</u>				
	Direct Labor	0	6,500	10,700
	Direct Non-Labor	0	120,200	120,000
	Indirect Lab/Non-Lab	0	4,800	8,000
		0	131,500	138,700
<u>P0000654 - Waiau 6 OH (RA=PIT)</u>				
	Direct Labor	0	714,200	548,500
	Direct Non-Labor	0	996,600	1,116,400
	Indirect Lab/Non-Lab	0	508,400	371,100
		0	2,219,200	2,036,000
<u>TOTAL</u>				
		14,552,702	17,137,600	18,186,700

CA-IR-501

Ref: CA-IR-124.

Please provide all input data files for the P-MONTH Production Simulation Model, for the test year period, in electronic format and hard copy.

HECO Response:

Included are the P-MONTH input data files that were used in the production simulation run for the Direct Testimony. Please refer to the electronic files that are provided because these files do not translate well to a hard copy. The files that are included are as follows and can be viewed in any text editing program (e.g. Word):

HE05TY1.ara	Area File
HE05TY1.eei	Area Load File
HE05TY1.fcl	Fuel Class File
HE05TY1.plt	Plant File
HE05TY1.rfc	Report Control File
HE05TY1.sfu	Spot Fuel File
HE05TY1.stu	System Study File
HE05TY1.TRF	Fix Energy Transaction File
HE05TY1.uba	Thermal Basic File
HE05TY1.ucs	Thermal Cost File
HE05TY2X.upf	Thermal Performance File
HE05TY1.umt	Thermal Maintenance File
Ptn1.hcp	Pattern File – HPOWER (Unit ID 20)
Ptn2.hcp	Pattern File – Kalaeloa (Unit ID 17)

(REVISED 5-20-05)

Ptn3.hcp	Pattern File – Kalaeloa (Unit ID 18)
Ptn4.hcp	Pattern File – Kalaeloa (Unit ID 21)
Ptn5.hcp	Pattern File – AES (Unit ID 19)
Rdlc1.spn	Spinning Reserve Requirement File
Heco00.rl2	PREL File
Heco00.qlp	Quick Load Pickup

These files are designed to work in the P-MONTH model and the most efficient way of understanding these inputs is to work directly with the Generation Planning Division staff. Most questions can be quickly answered with either running the model or by explaining how the major inputs, such as the Sales and Peak Forecast or the Maintenance Schedule, are processed and entered into the model.

Ptn3.hcp	Pattern File – Kalaeloa (Unit ID 18)
Ptn4.hcp	Pattern File – AES (Unit ID 19)
Ptn5.hcp	Pattern File – Kalaeloa (Unit ID 21)
Rdlc1.spn	Spinning Reserve Requirement File
Heco00.rl2	PREL File
Heco00.qlp	Quick Load Pickup

These files are designed to work in the P-MONTH model and the most efficient way of understanding these inputs is to work directly with the Generation Planning Division staff. Most questions can be quickly answered with either running the model or by explaining how the major inputs, such as the Sales and Peak Forecast or the Maintenance Schedule, are processed and entered into the model.

CA-IR-502

Ref: CA-IR-124.

Please explain how you are modeling load in the P-MONTH Simulation Model for the test year. Are you modeling every hour of the year or are you modeling typical load for a weekday and weekend?

HECO Response:

Test Year 2005's hourly load is modeled using 2004's actual hourly system loads as the basic profile, adjusting the energy and peaks for the system using the Sales and Peak Forecast monthly values (which are adjusted for Company Use and Transmission Line Losses).

CA-IR-503

Ref: T-4, Page 10, Lines 8 – 15.

The software to run the P-MONTH Production Simulation Model has been updated by an outside vendor since HECO's last rate case. Please provide a list of the software updates, their purpose and how each update changed the model.

- a. "As a result, the program algorithms used in this model are consistent current industry standards". Please provide the program algorithms referenced and/or program manuals.

HECO Response:

- a. Since HECO's last rate case, Docket No. 7766, there have been several updates. There was no change to the program simulation algorithm because there is no change in the power system structure and power system operation, and the algorithm has been well established. The P-MONTH Production Simulation Model was used in HELCO's 2000 TY rate case, Docket No. 99-0207 and MECO's 1999 TY rate case, Docket No. 97-0346 to forecast test year fuel consumption. The changes are in the program user graphic user interface and

database:

- The previous user graphic user interface was based on Foxpro. The new graphic

Chapter 8 in Power Generation, Operation and Control, by AJ Wood and BF Wollenberg, Second Edition 1996, John Wiley.

Chok Pang, President and Founder of P Plus Corp., worked with both Al Wood and Bruce Wollenberg when they were at PTL.

Page 4 to 6 to this response describe how P Plus's P-MONTH model works. The P-MONTH program can best be learned by working with the staff in Generation Planning Division. Please contact Irene Sekiya at 543-4778 to set up an arrangement.

P-MONTH/P-WEEK P+ PRODUCTION SIMULATION PROGRAMS

PPC's production simulation program is designed for two different contract/scheduling time intervals: *P-MONTH* performs hourly chronological simulations of power system operations on a monthly basis for utilities that purchase power, schedule energy, etc. on a monthly basis, and *P-WEEK* performs the same functions for utilities that conduct business on a weekly schedule. Otherwise, both versions are identical, and either version can perform simulations up to 30 years.

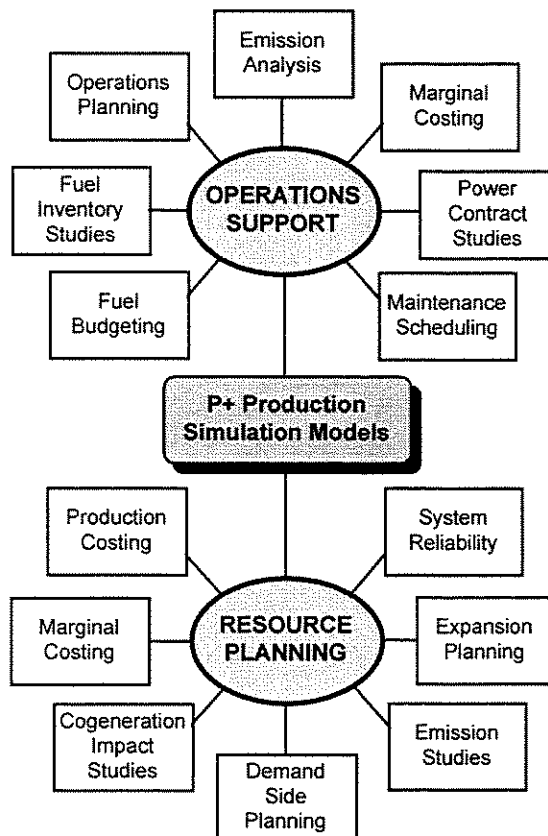
Since *P-MONTH* features unit commitment/economic dispatch on an hour-by-hour basis within ramp rate and minimum up and down time constraints, it can accurately model conditions which are sensitive to time-dependent events. These include pumped storage reservoir limitations, load management control, cogeneration, and renewable resources. As such, *P-MONTH* does not require the approximations required by many other production costing programs using typical day/week load duration curves.

P-MONTH program is ideal for coordination between short-term operational planning and long-term system planning.

Operation Planners can use *P-MONTH* to simulate the operations of the system from a few months to a year. The Resource Planner can use the same databases and program to simulate the system operations up to 30 years for screening alternative expansion plans, strategic planning and detail production costing. All *P+* programs use the same database to ensure the consistency of data assumptions and to minimize the work on database maintenance. A common database and user interface make planning processes convenient. Users will need only minimal support for error-free operation.

APPLICATIONS

P-MONTH applications cover a wide range of operations support and resource planning, including those shown in the following diagram.



HOURLY LOAD

P-MONTH program uses chronological hourly load data to accurately simulate time-dependent resources (wind, solar, and pumped storage) and operating constraints (spinning reserve, unit minimum up and down times, and ramp rates).

SPINNING RESERVE

P-MONTH has several options for specifying spinning reserve requirement:

- 1) % of hourly load
- 2) Fixed MW
- 3) Largest on-line unit

P-MONTH/P-WEEK P+ PRODUCTION SIMULATION PROGRAMS

Unit commitment algorithm ensures adequate spinning capability from the generation resources and transactions will meet or exceed the spinning reserve requirement.

THERMAL STATIONS

Traditional fossil steam, nuclear, combustion turbines, combined cycles, diesel, fuel cells, purchases, and renewable resources can be modeled as thermal stations. Thermal stations have the following input parameters:

- Minimum, maximum and intermediate capacity states
- Incremental heat rates or heat rate I/O curve in polynomial formula
- Minimum up/down times and ramp rate
- Must run, cycling or peaking status
- Penalty factors for commitment and dispatch
- Emission rates
- Transmission loss factors
- Multiple fuels contracts and spot fuel
- Forced outage rates
- Start-up costs
- Fixed and variable O&M costs.

HYDRO STATIONS

Users can simulate multiple hydro units as run-of-river, peak shaving, or both. Hydro units have the following input parameters:

- Firm or non-firm classification
- Minimum and maximum ratings
- Run of river capacity rating
- Transmission loss factor
- Monthly energy allocation
- Fixed and variable O&M costs

ENERGY STORAGE STATIONS

Users can model multiple energy storage units to represent Pumped Storage, Monthly Diversity

Exchange, and Compressed Air Energy Storage (CAES). Energy storage input parameters include:

- Generating and pumping capacities
- Generating and pumping efficiencies
- Storage size
- Initial storage level
- Inflow
- Fixed and variable O&M costs
- CAES supplemental fuel and heat rate.

MAINTENANCE SCHEDULING

P-MONTH has three options available for representing unit maintenance outages:

- 1) User Specified
- 2) Automatic Discrete Maintenance
- 3) Combination of the two

FUEL DATA

Fuel is categorized as Spot Fuel (Unlimited in availability), and Contract Fuel (Limited by delivery schedules and storage capabilities). A generating unit can use up to three contract fuels and one spot fuel. Input parameters for fuels include:

- Heat content
- Fuel cost
- Pollutant content
- Minimum/maximum delivery for contract fuels
- Minimum/maximum inventory for contract fuels

P-MONTH program keeps track of fuel inventory levels during simulation, and supports three options for contract fuel cost accounting:

- 1) Burn at Replacement Fuel Cost
- 2) Buy-Then-Burn Costing
- 3) Burn-Then-Buy Costing.

P-MONTH/P-WEEK

W/ PRODUCTION OFFER / OFFER REQUEST / YES

P-MONTH/P-WEEK P+ PRODUCTION SIMULATION PROGRAMS

OUTPUT INFORMATION

A variety of reports and graphs show the hourly, weekly (*P-WEEK only*), monthly and yearly production results. Yearly results are available by calendar or fiscal year.

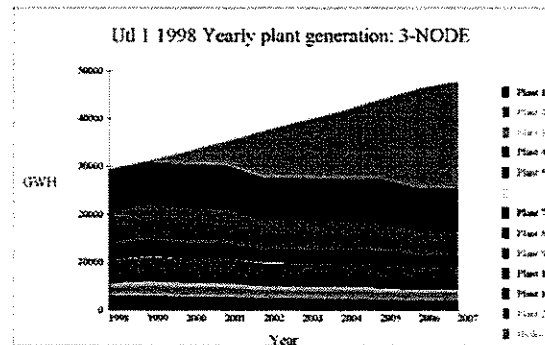
OUTPUT REPORTS

Users can easily select and obtain the following reports with interactive menus:

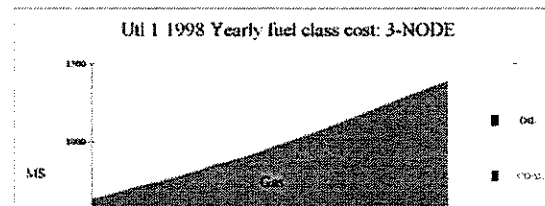
- System Energy and Cost Summary
- Fuel Use by Station Summary
- System Load and Capacity Summary
- Station Generation Summary
- Transaction Summary
- Fuel Summary
- Contract Fuel Delivery/Inventory Summary
- Hourly Generation Summary

GRAPHICAL OUTPUT

Generation by Plant



System Fuel Cost by Class



CA-IR-504

Ref: CA-IR-124, part c.

Generating unit capability information was provided in the response to CA-IR-124, part c. Please indicate which generating units are modeled with AGC in the P-MONTH Production Simulation Model.

HECO Response:

All of the HECO generating units, AES-Hawaii, and Kalaeloa are modeled with AGC.

HPOWER and the Non-Firm IPPs are modeled as being off AGC.

CA-IR-505

Ref: CA-IR-143.

HECO Workpaper 409, Page 62, indicates a 5-day requirement on the receiving and testing of fuel oil at Kahe Power Plant. Please provide copies of all supporting documents for this 5-day requirement.

HECO Resnonse:

CA-IR-506

Ref: CA-IR-124, part e.

- a. Please provide copies of all studies, reports, analyses, and work papers for the Penalty Factors, for all generating units provided in the above referenced response.
- b. Please explain why the penalty factor of 1.006 for Waiau 3 and Waiau 4 is different than the penalty factor of 1.012 for Waiau 5 through Waiau 10?

HECO Response:

- a. The Penalty Factors are calculated using an in-house designed program based on the following paper:

E. F. Hill and W. D. Stevenson, Jr., "An Improved Method Of Determining Incremental Loss Factors From Power System Admittances And Voltages", IEEE Transactions On Power Apparatus And Systems, Vol. PAS-87, No. 6, June 1968.

There are no derivation or calculation worksheets. The most efficient way of understanding this model is to work directly with the Transmission Planning Division staff. Most questions can be quickly answered with either running the model or by explaining how the major inputs are processed and entered into the model.

- b. The Penalty Factor for Waiau 3 and 4 is lower because they are connected to the 46 kV transmission lines whereas Waiau 5 through 10 are connected to the 138 kV transmission lines.

CA-IR-507

Ref: Response to CA-IR-361 (Interruption of Service).

The referenced response referred to HECO-1401, page 3, and HECO-1404, page 1, for the service interruption liability claim costs. A review of these referenced documents do not produce any historical information that ties to the annual amounts set forth in the table appearing on the first page of the response to CA-IR-361. Please provide the following:

- a. Please provide a pinpoint reference to the specific information set forth on HECO-1401, and HECO-1404, that provides the liability claim information, reconciling and explaining any differences.

by HECO's "STARS" claims database. Costs of each claim tie to the occurrence date whereas costs recorded in NARUC Account 925.02 reflect when recorded so there will be a lag between occurrence dates and expense recorded dates and the numbers will never match.

As an example, a claim related to a December interruption in 2005 was recorded in the

three weeks later in January. The STARS report will include the costs in the earlier year while the NARUC Account will reflect the following year.

- b. HECO-1404, page 1 indicates a total test year 2005 cost for work order "Gen Liab Prop Dmg (PD)" of \$322,299. As noted in a. above, service interruption claims are not carved

CA-IR-508

Ref: Response to CA-IR-331 & HECO-1612 (Employee Counts).

HECO-1612 compares average employees during the 2005 forecast test year with prior year levels. Please provide the following:

- a. Please provide the monthly employee counts supporting the 2005 test year average.
- b. If the information is readily available, please provide the monthly employee counts supporting the 2000-2003 recorded and 2004 budgeted averages.

HECO Response:

- a. The monthly employee counts supporting the 2005 test year average is provided on page 2.
- b. Monthly employee counts supporting the 2000-2003 recorded and 2004 budgeted averages are provided on pages 3-7.

CA-IR-508
DOCKET NO. 04-0113
PAGE 2 OF 7

VP	Dept	Dec-04	Jan-05	Feb-05	Mar-05	Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sen-05	Oct-05	Nov-05	Dec-05	Total	13 Mo Ave
Corp Exc	Comp & Ben	14	14	14	14	14	14	14	14	14	14	14	14	14	182	14
Corp Exc	Ind Rel	9	9	9	9	9	9	9	9	9	9	9	9	9	117	9
Corp Exc	SSF	42	43	43	43	43	43	43	43	43	43	43	43	43	558	43
Corp Exc	VP-Corp Exc	2	2	2	2	2	2	2	2	2	2	2	2	2	26	2
Corp Exc	WFSD	16	16	16	16	16	16	16	16	16	16	16	16	16	208	16
Corp Exc Total		83	84	84	84	84	84	84	84	84	84	84	84	84	1091	84
Corp Rel	Corp Comm	11	11	11	11	11	11	11	11	11	11	11	11	11	143	11
Corp Rel	VP-Corp Rel	2	2	2	2	2	2	2	2	2	2	2	2	2	26	2
Corp Rel Total		13	13	13	13	13	13	13	13	13	13	13	13	13	169	13
En Del	C&M	210	221	221	221	221	221	221	221	221	221	221	221	221	2862	220
En Del	Engineering	78	78	78	79	79	79	79	79	79	79	79	79	79	1024	79
En Del	Proj Mgmt	7	7	7	8	8	8	8	8	8	8	8	8	8	101	8
En Del	Supp Svcs	80	81	81	81	81	81	81	81	81	81	81	81	81	1052	81
En Del	Sys Op	106	109	109	109	109	109	109	109	109	109	109	109	109	1414	109
En Del	VP-En Del	3	3	3	3	3	3	3	3	3	3	3	3	3	39	3
En Del Total		484	499	499	501	501	501	501	501	501	501	501	501	501	6492	500
EnSol	CID	46	47	47	47	47	47	48	48	48	48	47	47	47	614	47
EnSol	Engy Proj	5	8	8	8	8	8	8	8	8	8	8	8	8	101	8
EnSol	Engy Svcs	42	60	60	60	60	60	60	60	60	60	60	60	60	762	59
EnSol	IRP	3	4	4	4	4	4	4	4	4	4	4	4	4	51	4
EnSol	SVP-EnSol	3	4	4	4	4	4	4	4	4	4	4	4	4	51	4
EnSol	Tech	2	2	2	2	2	2	2	2	2	2	2	2	2	26	2
EnSol Total		101	125	125	125	125	125	126	126	126	126	125	125	125	1605	124
FinVP	Financial VP	3	3	3	3	3	3	3	3	3	3	3	3	3	39	3
FinVP	Gen Acctg	25	26	26	26	26	26	26	26	26	26	26	26	26	337	26
FinVP	InfoTech	94	94	94	94	94	94	94	94	94	94	94	94	94	1222	94
FinVP	MAFS	22	22	22	22	22	22	22	22	22	22	22	22	22	286	22
FinVP	RiskMgt	9	9	9	9	9	9	9	9	9	9	9	9	9	117	9
FinVP Total		153	154	154	154	154	154	154	154	154	154	154	154	154	2001	154
GenCounsel	Legal	16	16	16	16	16	16	16	16	16	16	16	16	16	208	16
GenCounsel	VPGen	2	2	2	2	2	2	2	2	2	2	2	2	2	26	2
GenCounsel Total		18	18	18	18	18	18	18	18	18	18	18	18	18	234	18
Govt&Comr	Ed & Cons Aff	7	7	7	7	7	7	7	7	7	7	7	7	7	91	7
Govt&Comr	Gov Rel	2	3	3	3	3	2	2	2	2	2	2	2	2	30	2
Govt&Comr	Reg Affairs	7	7	7	7	7	7	7	7	7	7	7	7	7	91	7
Govt&Comr	VP-Gov & Com	5	5	5	5	5	5	5	5	5	5	5	5	5	65	5
Govt&Comm Total		21	22	22	22	22	21	21	21	21	21	21	21	21	277	21
Operations	Cust Svc	131	134	134	134	134	134	134	134	134	134	134	134	134	1739	134
Operations	SVP-Oper	2	2	2	2	2	2	2	2	2	2	2	2	2	26	2
Operations Total		133	136	136	136	136	136	136	136	136	136	136	136	136	1765	136
Pres	Int Audit	6	6	6	6	6	6	6	6	6	6	6	6	6	78	6
Pres	President	3	3	3	3	3	3	3	3	3	3	3	3	3	39	3
Pres Total		9	9	9	9	9	9	9	9	9	9	9	9	9	117	9
PubAffairs	SVP-Pub Aff	2	2	2	2	2	2	2	2	2	2	2	2	2	26	2
PubAffairs Total		2	2	2	2	2	2	2	2	2	2	2	2	2	26	2
Pwr Sup	Environ	24	24	24	24	24	24	24	24	24	24	24	24	24	312	24
Pwr Sup	Plng & Eng	50	55	55	55	55	55	55	55	55	55	55	55	55	710	55
Pwr Sup	Production	315	354	354	354	354	354	354	354	354	354	354	354	354	4563	351
Pwr Sup	VP-Pwr Sup	2	2	2	2	2	2	2	2	2	2	2	2	2	26	2
Pwr Sup Total		391	435	435	435	435	435	435	435	435	435	435	435	435	5611	432
Grand Total		1408	1497	1497	1499	1499	1498	1499	1499	1499	1499	1498	1498	1498	19388	1493

CA-IR-508
DOCKET NO. 04-0113
PAGE 3 OF 7

ORGANIZATION	1999	2000 Recorded												TOTAL	13-MO AVE
	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC		
VP-Corporate Excellence															
Compensation & Benefits	12	13	14	14	14	14	14	14	14	14	14	14	14	179	14
Workforce Staffing & Dev	18	16	16	16	16	16	16	15	15	15	16	16	15	206	16
Safety, Security, & Facilities	46	45	44	44	43	42	42	42	43	43	43	43	42	562	43
Industrial Relations	8	8	7	7	7	6	7	8	8	8	8	8	8	98	8
VP-Corporate Excellence Of	2	2	2	2	2	2	2	2	2	2	2	2	2	26	2
Subtotal	86	84	83	83	82	80	81	81	82	82	83	83	81	1,071	83
VP-Corporate Relations															
Corporate Communications	11	11	11	11	11	11	10	10	10	10	11	11	11	139	11
VP-Corporate Relations Office	2	2	2	2	2	2	2	2	2	2	2	2	2	26	2
Subtotal	13	13	13	13	13	13	12	12	12	12	13	13	13	165	13
VP-Customer Operations															
Customer Service	125	125	124	122	124	123	123	123	121	122	123	121	119	1,595	123
Legal	15	15	15	15	15	15	15	14	15	14	14	14	14	190	15
Energy Services	40	40	41	40	40	41	41	40	40	41	41	42	42	529	41
VP-Customer Operations Of	2	2	2	2	2	2	2	2	2	2	2	2	2	26	2
Subtotal	182	182	182	179	181	181	181	179	178	179	180	179	177	2,340	181
VP-Energy Delivery															
Engineering	85	82	82	82	81	79	81	81	81	82	81	82	83	1,062	82
Project Management	7	7	7	7	7	7	7	7	7	7	7	7	7	91	7
Construction & Maint	225	223	221	216	216	216	218	224	221	221	220	220	219	2,360	220
Customer Installations	57	55	55	55	55	57	56	56	54	53	53	52	52	710	55
System Operation	105	103	102	107	107	105	103	101	99	98	101	101	101	1,333	103
Support Services	90	88	87	88	86	87	88	86	85	86	87	87	87	1,132	87
VP-Energy Delivery 's Office	3	2	2	2	2	2	2	2	2	2	2	2	2	27	2
Subtotal	572	560	556	557	554	553	555	557	549	549	551	551	551	7,215	556
VP-Finance															
General Accounting	24	24	23	23	23	24	24	24	23	23	23	23	23	304	23
Mgmt Acctg & Fin Svcs	20	20	20	19	19	20	20	20	22	22	22	22	21	267	21
Info Security & Office Svcs	18	18	18	18	18	19	18	18	17	19	18	18	18	235	18
Info Tech & Svcs	74	72	72	73	72	71	71	70	71	71	72	71	72	932	72
Risk Management	9	9	9	9	9	9	9	9	9	9	9	9	9	117	9
VP-Financial VP/Treas Off	2	2	2	2	2	2	2	2	2	2	2	2	2	26	2
Subtotal	147	145	144	144	143	145	144	143	144	146	146	145	145	1,881	145
VP-Power Supply															
Power Supply O&M	267	263	260	262	265	268	271	272	269	272	274	273	270	3,486	268
Power Supply Technical Solution	2	2	2	2	2	2	2	2	2	2	2	2	2	26	2
Power Supply Services	14	14	14	14	14	14	14	14	14	13	13	13	13	178	14
Environmental	20	20	19	20	21	21	21	20	20	21	21	22	22	268	21
Planning & Engineering	49	50	49	49	49	49	51	50	51	49	49	49	50	644	50
VP-Power Supply Office	2	2	2	2	2	2	2	2	2	2	2	2	2	26	2
Subtotal	354	351	346	349	353	356	361	360	358	359	361	361	359	4,628	357
VP-Gov & Comm Affairs															
Regulatory Affairs	7	7	7	7	7	7	7	7	7	7	7	7	7	91	7
Governmental Relations	2	3	3	3	3	2	1	1	2	2	2	2	2	28	2
Education & Consumer Affrs	7	7	7	7	7	7	7	7	7	7	8	8	8	94	7
VP-Gov & Comm Affairs	3	3	3	3	3	3	3	3	3	3	3	3	3	39	3
Subtotal	19	20	20	20	20	19	18	18	19	19	20	20	20	252	19
President's Office															
Internal Audit	4	4	4	4	4	4	4	4	3	3	4	4	4	50	4
President's Office	4	4	4	4	4	3	3	3	3	4	4	4	4	48	4
Subtotal	8	8	8	8	8	7	7	7	6	7	8	8	8	98	8
Sr. VP Operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sr. VP Public Affairs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sr. Energy Solutions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GRAND TOTAL	1,381	1,363	1,352	1,353	1,354	1,354	1,359	1,357	1,348	1,353	1,362	1,360	1,354	17,650	1,362

CA-IR-508
DOCKET NO. 04-0113
PAGE 4 OF 7

ORGANIZATION	2000	2001 Recorded												TOTAL	13-MO AVE
	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC		
VP-Corporate Excellence															
Compensation & Benefits	14	14	14	14	14	14	14	14	14	14	13	13	13	179	14
Workforce Staffing & Dev	15	16	16	15	15	15	16	16	16	16	16	16	16	204	16
Safety, Security, & Facilities	42	43	43	43	40	40	40	40	42	42	40	40	40	535	41
Industrial Relations	8	8	8	8	9	9	9	9	9	9	9	9	9	113	9
VP-Corporate Excellence Of	2	2	2	2	2	2	2	2	2	2	2	2	2	26	2
Subtotal	81	83	83	82	80	80	81	81	83	83	80	80	80	1,057	82
VP-Corporate Relations															
Corporate Communications	11	10	10	10	10	10	10	10	9	9	9	9	9	126	10
VP-Corporate Relations Office	2	2	2	2	2	2	2	2	2	2	2	2	2	26	2
Subtotal	13	12	12	12	12	12	12	12	11	11	11	11	11	152	12
VP-Customer Operations															
Customer Service	119	120	119	121	121	122	122	120	120	120	120	119	118	1,561	120
Legal	14	14	14	14	14	14	15	15	15	15	15	15	15	189	15
Energy Services	42	43	42	41	42	43	44	44	43	43	43	43	43	556	43
VP-Customer Operations Of	2	2	2	2	2	2	2	2	2	2	2	2	2	26	2
Subtotal	177	179	177	178	179	181	183	181	180	180	180	179	178	2,332	180
VP-Energy Delivery															
Engineering	83	82	81	81	81	79	80	81	80	80	80	80	79	1,047	81
Project Management	7	7	7	7	7	7	7	7	7	7	7	7	7	91	7
Construction & Maint	219	215	214	213	214	220	223	217	215	215	207	206	206	2,784	214
Customer Installations	52	51	53	53	52	52	52	52	52	51	51	49	49	669	51
System Operation	101	104	103	104	106	105	105	107	106	105	105	105	104	1,360	105
Support Services	87	87	87	87	85	84	84	85	84	84	85	84	82	1,105	85
VP-Energy Delivery's Office	2	2	2	2	2	2	2	2	2	2	2	2	2	26	2
Subtotal	551	548	547	547	547	549	553	551	546	544	537	533	529	7,082	545
VP-Finance															
General Accounting	23	22	23	23	24	23	24	24	24	24	24	25	25	308	24
Mgmt Acctg & Fin Svcs	21	22	22	22	22	22	22	23	23	23	23	22	22	289	22
Info Security & Office Svcs	18	16	17	16	17	17	17	18	18	18	18	19	19	228	18
Info Tech & Svcs	72	72	72	71	75	75	74	74	73	74	74	72	72	950	73
Risk Management	9	9	9	9	9	9	9	9	9	9	9	9	9	117	9
VP-Financial VP/Treas Off	2	2	2	2	2	2	2	2	2	2	2	2	2	26	2
Subtotal	145	143	145	143	149	148	148	150	149	150	150	149	149	1,918	148
VP-Power Supply															
Power Supply O&M	270	270	269	276	277	278	289	281	280	280	288	286	283	3,627	279
Power Supply Technical Solution	2	2	2	2	2	2	2	2	2	2	2	2	2	26	2
Power Supply Services	13	12	12	13	13	13	13	13	13	13	13	13	13	167	13
Environmental	22	22	22	22	23	23	23	23	23	23	23	23	23	295	23
Planning & Engineering	50	49	49	49	52	52	54	55	53	50	50	50	50	663	51
VP-Power Supply Office	2	2	2	2	2	2	2	0	0	0	0	0	0	14	1
Subtotal	359	357	356	364	369	370	383	374	371	368	376	374	371	4,792	369
VP-Gov & Comm Affairs															
Regulatory Affairs	7	7	6	6	6	6	6	6	6	6	6	6	6	80	6
Governmental Relations	2	3	3	3	2	2	2	2	2	2	2	2	2	29	2
Education & Consumer Affrs	8	8	8	7	7	8	8	8	7	6	6	6	6	93	7
VP-Gov & Comm Affairs	3	4	4	4	4	4	4	4	4	4	4	4	4	51	4
Subtotal	20	22	21	20	19	20	20	20	19	18	18	18	18	253	19
President's Office															
Internal Audit	4	4	4	4	4	4	4	3	4	4	3	3	3	48	4
President's Office	4	4	4	4	4	4	4	4	4	4	4	4	4	52	4
Subtotal	8	8	8	8	8	8	8	7	8	8	7	7	7	100	8
Sr. VP Operations	0	0	0	0	0	0	0	2	2	2	2	2	2	12	1
Sr. VP Public Affairs	0	0	0	0	0	0	0	2	2	2	2	2	2	12	1
Sr. Energy Solutions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GRAND TOTAL	1,354	1,352	1,349	1,354	1,363	1,368	1,388	1,380	1,371	1,366	1,363	1,355	1,347	17,710	1,365

CA-IR-508
DOCKET NO. 04-0113
PAGE 5 OF 7

ORGANIZATION	2001	←2002 Recorded→												TOTAL	13-MO AVE
	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC		
VP-Corporate Excellence															
Compensation & Benefits	13	13	12	12	13	13	13	13	13	13	13	13	13	167	13
Industrial Relations	9	9	9	9	9	9	9	9	9	9	9	9	9	117	9
Safety, Security, & Facilities	40	40	40	40	41	41	42	41	41	41	39	38	39	523	40
Workforce Staffing & Dev	16	16	16	16	16	16	16	16	15	15	15	15	14	202	16
VP-Corporate Excellence Of	2	2	2	2	2	2	2	2	2	2	2	2	2	26	2
Subtotal	80	80	79	79	81	81	82	81	80	80	78	77	77	1,035	80
VP-Corporate Relations															
Corporate Communications	9	9	9	9	9	9	9	9	9	9	9	9	9	117	9
VP-Corporate Relations Office	2	2	2	2	2	2	2	2	2	2	2	2	2	26	2
Subtotal	11	11	11	11	11	11	11	11	11	11	11	11	11	143	11
VP-Customer Operations															
Customer Service	118	117	116	115	116	116	116	114	114	115	115	119	118	1,509	116
Energy Services	43	43	43	42	42	43	43	43	42	42	42	42	42	552	42
Legal	15	15	15	15	15	15	15	15	14	14	14	14	14	190	15
VP-Customer Operations Of	2	2	2	2	2	2	2	2	2	2	2	2	2	26	2
Subtotal	178	177	176	174	175	176	176	174	172	173	173	177	176	2,277	175
VP-Energy Delivery															
Construction & Maint	206	209	209	210	208	205	203	203	211	207	205	205	206	2,687	207
Customer Installations	49	50	50	51	51	51	51	51	49	49	50	51	50	653	50
Engineering	79	79	79	79	79	79	79	78	78	78	78	78	77	1,020	78
Project Management	7	7	7	7	7	6	6	6	6	6	6	6	6	83	6
Support Services	82	82	82	82	82	83	82	81	80	81	80	80	79	1,056	81
System Operation	104	104	103	103	104	104	104	103	102	102	102	100	99	1,334	103
VP-Energy Delivery's Office	2	2	2	2	2	2	2	2	2	2	2	2	2	26	2
Subtotal	529	533	532	534	533	530	527	524	528	525	523	522	519	6,859	527
VP-Finance															
General Accounting	25	25	25	25	25	25	25	25	25	25	25	25	25	325	25
Info Security & Office Svcs	19	18	18	18	18	18	18	18	18	18	18	17	18	234	18
Info Technology & Svcs	72	72	73	73	72	72	71	70	71	71	72	71	72	932	72
Mgmt Acctg & Fin Svcs	22	22	22	22	22	22	22	22	22	22	22	22	22	286	22
Risk Management	9	9	9	9	9	9	9	9	9	9	9	9	9	117	9
VP-Financial VP/Treas Off	2	2	2	2	2	2	2	2	2	2	2	2	2	26	2
Subtotal	149	148	149	149	148	148	147	146	147	147	148	146	148	1,920	148
VP-Power Supply															
Environmental	23	23	23	23	23	23	23	23	23	23	23	22	22	297	23
Planning & Engineering	50	50	50	50	50	50	50	51	51	49	49	49	47	646	50
Power Supply O&M	298	294	292	289	288	289	288	290	284	283	283	286	284	3,748	288
Power Supply Services														0	0
Power Supply Technical Solution														0	0
VP-Power Supply Office	0	0	2	2	2	2	2	2	2	2	2	2	2	22	2
Subtotal	371	367	367	364	363	364	363	366	360	357	357	359	355	4,713	363
VP-Gov & Comm Affairs															
Education & Consumer Affrs	6	6	6	6	6	6	6	6	5	5	5	7	7	77	6
Governmental Relations	2	2	2	2	2	1	1	2	2	1	1	1	2	21	2
Regulatory Affairs	6	6	6	6	6	6	6	6	6	6	6	6	6	78	6
VP-Gov & Comm Affairs	4	4	4	4	4	4	4	4	4	4	4	4	4	52	4
Subtotal	18	18	18	18	18	17	17	18	17	16	16	18	19	228	18
President's Office															
Internal Audit	3	3	4	4	4	4	4	4	4	4	4	4	4	50	4
President's Office	4	4	4	4	4	4	3	3	3	3	3	3	3	45	3
Subtotal	7	7	8	8	8	8	7	7	7	7	7	7	7	95	7
Sr. VP Operations	2	2	2	2	2	2	2	2	2	2	2	2	2	26	2
Sr. VP Public Affairs	2	2	2	2	2	2	2	2	2	2	2	2	2	26	2
Sr. VP Energy Solutions	0	0	0	0	0	2	3	3	3	5	5	5	5	31	2
GRAND TOTAL:	1,347	1,345	1,344	1,341	1,341	1,341	1,337	1,334	1,329	1,325	1,322	1,326	1,321	17,362	1,326

Dept	Dec-02	Jan-03	Feb-03	Mar-03	Apr-03	May-03	Jun-03	Jul-03	Aug-03	Sep-03	Oct-03	Nov-03	Dec-03	Total	15 Mo Ave
Comp & Ben	13	13	13	14	14	14	13	13	13	12	13	13	13	171	13
Ind Rel	9	9	9	9	9	9	9	9	9	9	9	9	9	117	9
SSF	39	38	40	41	42	42	42	42	42	42	42	42	42	536	41
WFSD	14	15	16	16	16	16	16	15	15	15	15	15	15	199	15
VP-Corp Exc	2	2	2	2	2	2	2	2	2	2	2	2	2	26	2

Corp Comm	9	9	9	10	10	10	10	11	11	10	10	10	10	129	10
VP-Corp Rel	2	2	2	2	2	2	2	2	2	2	2	2	2	26	2
Corp Rel Total	11	11	11	12	12	12	12	13	13	12	12	12	12	155	12
C&M	206	204	204	205	206	206	205	204	202	200	202	204	202	2650	204
Engineering	77	76	76	75	75	75	75	74	74	74	74	74	72	971	75
Proj Mgmt	6	6	5	6	6	6	6	6	6	6	6	6	6	77	6
Supp Svcs	79	80	78	78	78	77	77	77	77	77	77	77	76	1009	78
Sys Op	99	97	97	96	96	95	94	94	94	94	93	92	93	1234	95
VP-En Del	2	3	3	3	3	3	3	3	3	3	3	3	3	38	3
En Del Total	469	466	463	463	464	463	460	458	456	454	455	456	452	5979	461
CID	50	48	48	48	45	44	44	43	43	43	44	44	44	588	45
Engy Proj		1	2	3	5	5	5	5	5	5	5	5	5	51	4
Engy Svcs	42	43	43	43	42	41	41	41	41	41	41	41	40	540	42
IRP		2	2	2	2	3	3	3	3	3	3	3	3	30	2
SVP-EnSol	5	3	3	3	3	3	3	3	3	3	3	3	4	42	3
Tech		2	2	2	2	2	2	2	2	2	2	2	2	24	2
EnSol Total	97	97	100	101	99	98	98	97	97	97	98	98	98	1275	98
Financial VP	2	2	2	3	3	3	3	3	3	3	3	3	3	36	3
Gen Acctg	25	25	25	25	25	25	25	25	25	25	25	25	25	325	25
InfoTech	90	92	94	94	94	92	91	92	92	91	90	90	88	1190	92
MAFS	22	22	21	21	21	21	21	21	21	21	21	21	22	276	21
RiskMgt	9	9	9	9	9	9	9	9	9	9	9	9	9	117	9
VP-VP Total	149	150	151	153	152	150	148	150	148	146	148	148	147	1842	150

VP	Dept	Recd													13 Mo	
		Dec-03	Jan-04	Feb-04	Mar-04	Apr-04	May-04	Jun-04	Jul-04	Aug-04	Sep-04	Oct-04	Nov-04	Dec-04	Total	Ave
Corp Exc	Comp & Ben	13	13	13	13	13	13	13	14	14	14	14	14	14	175	13
Corp Exc	Ind Rel	9	9	9	9	9	9	9	9	9	9	9	9	9	117	9
Corp Exc	SSF	42	42	42	42	42	42	42	42	42	42	42	42	42	546	42
Corp Exc	VP-Corp Exc	2	2	2	2	2	2	2	2	2	2	2	2	2	26	2
Corp Exc	WFSD	15	15	15	15	15	15	15	16	16	16	16	16	16	201	15
Corp Exc Total		81	81	81	81	81	81	81	83	83	83	83	83	83	1065	82
Corp Rel	Corp Comm	10	11	11	11	11	11	11	11	11	11	11	11	11	142	11
Corp Rel	VP-Corp Rel	2	2	2	2	2	2	2	2	2	2	2	2	2	26	2
Corp Rel Total		12	13	13	13	13	13	13	13	13	13	13	13	13	168	13
En Del	C&M	202	201	201	201	202	202	204	217	214	210	210	210	210	2684	206
En Del	Engineering	72	78	78	78	78	78	78	78	78	78	78	78	78	1008	78
En Del	Proj Mgmt	6	6	6	6	6	6	6	7	7	7	7	7	7	84	6
En Del	Supp Svcs	76	79	79	79	78	78	78	79	79	79	79	79	80	1022	79
En Del	Sys Op	93	96	96	96	99	99	102	106	106	106	106	106	106	1317	101
En Del	VP-En Del	3	3	3	3	3	3	3	3	3	3	3	3	3	39	3
En Del Total		452	463	463	463	466	466	471	490	487	483	483	483	484	6154	473
EnSol	CID	44	45	45	45	45	45	46	47	47	47	46	46	46	594	46
EnSol	Engy Proj	5	5	5	5	5	5	5	5	5	5	5	5	5	65	5
EnSol	Engy Svcs	40	43	42	42	42	42	42	42	42	42	42	42	42	545	42
EnSol	IRP	3	3	3	3	3	3	3	3	3	3	3	3	3	39	3
EnSol	SVP-EnSol	4	3	3	3	3	3	3	3	3	3	3	3	3	40	3
EnSol	Tech	2	2	2	2	2	2	2	2	2	2	2	2	2	26	2
EnSol Total		98	101	100	100	100	100	101	102	102	102	101	101	101	1309	101
FinVP	Financial VP	3	3	3	3	3	3	3	3	3	3	3	3	3	39	3
FinVP	Gen Acctg	25	25	25	25	25	25	25	25	25	25	25	25	25	325	25
FinVP	InfoTech	88	94	94	94	94	94	94	94	94	94	94	94	94	1216	94
FinVP	MAFS	22	21	21	21	21	21	21	22	22	22	22	22	22	280	22
FinVP	RiskMgt	9	9	9	9	9	9	9	9	9	9	9	9	9	117	9
FinVP Total		147	152	152	152	152	152	152	153	153	153	153	153	153	1877	153

Gen	Counsel	VPGen	2	2	2	2	2	2	2	2	2	2	2	2	26	2
GenCounsel Total			16	16	16	16	16	16	18	18	18	18	18	18	220	17

CA-IR-509

Ref: Response to CA-IR-331 & HECO-1612 (Employee Counts).

The response to CA-IR-331 included actual employee counts as of February 2005. For each of the following employee count variances, please describe the Company's plans to add, transfer or decrease employees in the remainder of 2005:

- a. As of February 2005, the actual number of "Safety, Security & Facilities" employees under the VP-Corporate Excellence is 52 vs. the 2005 test year average of 43.
 1. What are HECO's plans to reduce employees in this area to achieve the average employee counts forecast for 2005?
 2. Has the Company revised its organizational structure or its plans in this area?
 3. Please explain and provide a copy of any supporting documents or analyses.
- b. As of February 2005, the actual number of "Project Management" employees under the VP-Energy Delivery is 0 vs. the 2005 test year average of 8.
 1. What are HECO's plans to increase employees in this area to achieve the average employee counts forecast for 2005?
 2. Has the Company revised its organizational structure or its plans in this area?

Health and Safety Specialist to ensure adequate safety and environmental surveillance over outside contractors working on the Company's power generation facilities. Since HECO is still ultimately responsible for any violations, an additional person is needed to ensure compliance with safety and environmental regulations.

The other two positions represent additions to the Facilities Division. The Facilities Division has added a Project Manager and a Facilities Administrator to handle the increased workload due to various additional projects and responsibilities. Facility restoration projects are currently being undertaken due to the age of HECO's buildings and yards. Ergonomic concerns as well as operational changes have also necessitated workstation revamping and modification projects.

The Facilities Administrator position will also be handling the budget responsibilities of the Securities Division since the scope of their activities have increased in the post-911 era.

2. Please refer to a. 1. of this response.
 3. Not applicable.
- b.
1. Please refer to the response provided for CA-IR-600. While the eliminated position does not directly charge operating expenses, approximately 48% of the costs to NARUC 184 (Energy Delivery Clearing) are cleared to capital accounts and approximately 48% are cleared to various operating and maintenance expense accounts, mainly transmission and distribution accounts. The determination of these clearing percentages is provided in the response to CA-IR-334, page 10 of 11.
 2. Please refer to the response provided for CA-IR-600.

- 3. No supporting documentation is available.
- c.
- 1. Since February 2005, the department has filled six positions, bringing the current employee count to 105. The remaining four positions are anticipated to be filled by middle to late June 2005.
 - 2. The Company has not revised its organizational structure or plans in this area.
 - 3. Not applicable.
- d.
- 1. Of the ten positions that were vacant as of February 2005, one position remained vacant as of May 31, 2005. This open position is projected to be filled by the last quarter of 2005.
 - 2. The Company has not revised its organizational structure of plans in this area.
 - 3. Not applicable.

CA-IR-510

Ref: Response to CA-IR-331 & HECO-1612 (Employee Counts).

The response to CA-IR-331 included actual employee counts as of February 2005. Please provide the following:

- a. Did the Company transfer employees from "Energy Solutions" and "Integrated Resources Planning" under the Sr. VP-Energy Solutions to create a new "Customer Solutions" organization? Please explain.
- b. As of February 2005, the actual number of "Customer Solutions" employees is 50 vs. the 2005 test year average of 63 for "Energy Solutions" and "Integrated Resources Planning."
 1. What are HECO's plans to increase employees in this area to achieve the average employee counts forecast for 2005?
 2. Has the Company revised its organizational structure or its plans in this area?

3. Please explain and provide a copy of any supporting documents or analyses.

PAGE 2 OF 6

reporting to the Manager, Energy Services. These three divisions are the Administrative, Pricing, and Customer Efficiency Programs Divisions.

- b. In Direct Testimony, per HECO T-10, in which it was assumed that DSM costs would generally be included in base rates and the new DSM programs would be approved in this docket, pursuant to Commission-approved stipulations, the expected test year employee count was 64. The test year employee count was updated to 68 in order to reflect the Customer Solutions Process Area reorganization as indicated in responses to CA-IR-78 and

to reflect the reorganization of the Senior Database Planning Analyst for the IDB Division.

05-0069 per Order No. 21698 (March 16, 2005). Included in this transfer are ten “open” positions that will be filled pending the approval of the Energy Efficiency Docket. These ten “open” positions include the conversion of eight contract hires to permanent employees, a RCEA Program Manager position and a C&I Engineer position.

With the transfer of the twelve incremental DSM positions, including the ten “open” positions referenced above to the Energy Efficiency Docket (05-0069), the increased staffing covered in the subject rate case docket results in an increase of only six employees – from the actual employee count of 50 as of Feb. 2005 to 56 as shown on page 6. The 56

employee count was derived as follows:

- a. From the 50 actual employee count as of Feb. 2005, one incremental DSM program employee included in the Energy Efficiency Docket was deducted to get 49 employees.
- b. Three employees hired during the 03/01/05 – 05/18/05 period were added to get 52 employees.
- c. Four unforecasted positions addressed in CA-IR-78 and CA-IR-601(b) were also factored in to get a Total 2005 Employee Count of 56.

As shown on page 6, Customer Solutions intends to staff up to this level by hiring an additional four employees.

1. The following represents Customer Solutions’ plans to fill the four “open” positions as

b. Efforts to commit to find employment for the same position in June 2005.

Analyst position are on-going and the Division anticipates filling the vacancy in June 2005.

- c. One new DSM C&I Direct Load Control ("CIDLC") Program Manager will be hired. In the instant rate case, this position was initially budgeted to incremental DSM but will now be recovered through base rates pursuant to HECO's May 5, 2005 transmittal. See response to CA-IR-486 (c) for work that this employee will be performing.
- d. One new DSM Program Engineer will be hired to support both the DSM CIDLC and RDLC programs. Since the approval of these programs in October 2004 the

The DSM program costs related to these programs are covered in both this Docket and Docket No. 05-0069. See response to CA-IR-487 (a) and CA-IR-1, HECO T-11, Attachment 1 and 2.

3. See responses to (1) and (2) above.

TOML SOLUTIONS
Employee Count

Actual Employee Count a/o 05/18/05 (A)	Positions Budgeted In 2005 Test Year	2005 Unforecasted Positions	Total 2005 Employee Count (B)	Difference (B) - (A)
53	64 ⁽³⁾	4 ⁽⁴⁾	68	15
(1)	(12)	0	(12)	(11)
52	52	4	56	4

ired on March 17, 2005.
ms position was hired on
005.

HECO-1612 due to difference in periods used to
ons" employees was determined by using a 13-
of each month. This 13-month period covered
age 25 of 28 for discussion of methodology. In our
represents the count for employees budgeted for the
a beginning of the year (Jan. 1, 2005).

anted in responses to CA-IR-78. Unforecasted
DSM Program Engineer (transfer in from Customer
Resource Planning Analyst for the IRP Division.

ad from Docket No. 04-0113 and included instead in
th 16, 2005). Included in this transfer are ten "open"
y Docket.

CA-IR-511

Ref: Response to CA-IR-331 & HECO-1612 (Government & Community Affairs).

As of February 2005, the referenced response identifies seven Government & Community Affairs employees, as compared to five included in the test year forecast. Please provide the following:

- a. Please list the Government & Community Affairs positions included in the 2005 test year forecast.
- b. Please list the actual Government & Community Affairs positions as of February 2005.
- c. Referring to the lists provided in response to items (a) and (b) above, please identify and describe any revisions to HECO's staffing plans and objectives for this department in 2005.

HECO Response:

- a. Vice President – Government & Community Affairs

Executive Secretary

Director, Community Relations

Community Relations Specialist

Executive Staff Assistant (Regulatory Affairs)
- b. Vice President – Government & Community Affairs

Executive Secretary

Director, Community Relations

Community Relations Specialist

Executive Staff Assistant (Regulatory Affairs)

Community Relations Coordinator

Public Affairs Specialist

- c. With the increasing number of projects the Company has planned and projects the Company is currently implementing, more time has been required to address and respond to questions or concerns the communities may have on the Company's projects. The Community Relations Director is pivotal in dealing with these issues on behalf of the Company. The Community Relations Specialist serves as the company's primary liaison with the community on repair and maintenance work that, while small in scale, may be disruptive to residents, businesses, schools, and others in the community. Since such disruptions may involve traffic, noise, dust, planned outages, etc. the community relations specialist keeps the communities informed by briefing groups such as neighborhood boards and community associations. The specialist also works with our Corporate Communications office to issue media releases on work that is expected to adversely affect communities. As part of this work, the specialist is in the field at the work site both before work begins and during construction. This enables the specialist to better assess the impact that the work will have on the neighborhood.

The position of Community Relations Coordinator was created to support the Community Relations Director and Community Relations Specialist with their administrative and paraprofessional duties so that they would be able to spend more time focusing on mitigating potential project impacts on communities as well as addressing customer concerns. The Coordinator position serves as the Company's point of contact for outside organizations and tracks and responds to requests to support various community organizations, events, programs, and service projects. The job also entails coordinating, organizing and managing the Company's involvement in volunteer efforts and includes the handling of logistics for several major community events.

Approximately 20% of the Coordinator's time is spent reviewing all grant proposals

submitted to the HEI Charitable Foundation (HEICF) and for preparing the Company's recommendation to the HEICF as to which proposals should be funded.

It has been recognized for some time that the workload associated with Government & Community Affairs functions is uneven. At times Regulatory Affairs may demand more than normal resources; at other times Community Relations may require knowledgeable effort well above the ordinary. One function of the Public Affairs Specialist Position is to work with Public Affairs vice presidents, managers, and directors in furthering the Company's goals and objectives. The position of Public Affairs Specialist was created to provide flexibility in accommodating these uneven demands. The value of that determination was evident in March of this year when Patsy Nanbu (previously Director of Regulatory Affairs) was promoted to Controller, and Darcy Endo-Omoto (Public Affairs Specialist) was able to assume some of the duties of that position on an acting basis, along with continuing her duties and responsibilities as Public Affairs Specialist.

CA-IR-512

Ref: Response to CA-IR-331 & HECO-1612 (Special Projects).

As of February 2005, the referenced response identifies 4 Special Projects employees, as compared to "0" included in the test year forecast. Please provide the following:

- a. Please list any Special Projects positions included in the 2005 test year forecast.
- b. Please list the actual Special Projects positions as of February 2005.
- c. Referring to the lists provided in response to items (a) and (b) above, please identify and describe any revisions to HECO's staffing plans and objectives for this department in 2005.
- d. For each position identified in response to items (a) and (b) above, please provide a copy of the written job description. If no formal job descriptions exist, please explain the absence of such documentation and provide a detailed discussion of the duties and responsibilities of each position.

HECO Response:

- a. The Project Manager position was included in the 2005 test year forecast as part of the VP-Energy Delivery's Office. Time charges for this position were forecasted to capital accounts.
- b. The positions in Special Projects as of February 2005 are:
 - Vice President, Special Projects
 - New Dispatch Office Project Manager *
 - New Dispatch Office Project Director *
 - Executive Secretary
- c. * We had an overlap in February 2005. The Project Director came on board February 21 and replaced the Project Manager, who transferred to the System Operation Dept. on

April 4. During this transition period, we had 4 employees. Effective April 4, 2005, we have 3 employees.

The project organization was formed to oversee the construction of the New Dispatch Office Building and the implementation of the new Energy Management

System (EMS) and the new Outage Management System (OMS). The responsibilities of Special Projects will eventually transfer to System Operation Dept. upon completion of the EMS and OMS projects.

- d. A copy of the written job description for each position in Special Projects is provided on pages 3-6.

HAWAIIAN ELECTRIC COMPANY
MERIT
POSITION DESCRIPTION

**HAWAIIAN ELECTRIC COMPANY
MERIT
POSITION DESCRIPTION**

Position Title: Manager, New Dispatch Office Project
Department: N/A
Reports to: Vice President, Energy Delivery

Job Code: J2537

Role: E

FLSA: A

Date: 08-19-04

Primary Role/Function

Responsible for the design, development, and fully integrated implementation of the Energy Management, Customer Information and Outage Management systems. Responsible for the design and construction of the new dispatch office.

Job Responsibilities

- | | | |
|---|-----|--|
| * | 30% | Responsible for overseeing the development of the architectural design and construction of the new dispatch office building. Design considerations should include aspects related to improving the security and resistance to threats that are either man-made or natural weather occurrences. |
| * | 20% | Responsible for the design, development, implementation and integration of the systems associated with the Energy Management, Customer Information, and Outage Management systems. Is responsible for coordinating and directing the development of the functional specifications to meet corporate needs while ensuring the corporate security (from cyber threat) guidelines and policies are met. |
| * | 20% | Represents the project needs in participation with other departments regarding possible changes to the process and, facilities issues. Able to resolve concerns from departments impacted by the implementation of these systems and the new dispatch office facility. |
| * | 20% | Special assignments as assigned. |
| * | 10% | Responsible for ensuring that regulatory approvals, e.g. PUC related matters, are met in a timely manner and that all approvals are obtained to proceed with these projects. |

* Denotes a "Fundamental Responsibility"

**HAWAIIAN ELECTRIC COMPANY
POSITION DESCRIPTION**

Position Title: Vice President, Special Projects
Reports to: Senior Vice President, Operations

Job Code: JVP38

Date: 6/15/04

FLSA: E

GRADE: E05

Primary Role/Function

Provides leadership to the development and implementation of the Energy Management and Outage Management Systems, the construction of the new Dispatch Office, and the overall integration of Customer Information System to ensure that these systems and facilities support the corporate strategy and business needs. Supports the Senior Vice President, Operations by taking on special projects and assignments which need executive oversight.

Job Responsibilities

- * 40% Responsible for overall development and implementation of the Energy Management and Outage Management Systems and the construction of the new Dispatch Office to ensure that

**HAWAIIAN ELECTRIC COMPANY
MERIT
POSITION DESCRIPTION**

Position Title: Executive Secretary
Department: Special Projects
Reports to: Vice President, Special Projects

Job Code: J2149V11

Role: I

FLSA: N/E

Date: 6-1-2004

Primary Role/Function

Provide secretarial and administrative support to the Vice President, responsible for Special Projects.

Job Responsibilities

- | | | |
|---|-----|---|
| * | 30% | Provide professional secretarial and administrative support. |
| * | 10% | Initiate and respond to correspondence, as appropriate. |
| * | 10% | Maintain confidential files and department records. |
| * | 20% | Provide staff support for corporate goals and certain senior management functions. |
| * | 20% | Assemble and compile data from Company sources for correspondence, reports, presentations, meetings, etc. |
| * | 10% | Maintain budget, cost, forecast and/or similar records. |

* Denotes a "Fundamental Responsibility"

CA-IR-513

Ref: Response to CA-IR-331 & HECO-1612 (Governmental Relations & Public Affairs).

As of February 2005, the referenced response identifies three Governmental Relations and two Public Affairs employees, which represent the same employee counts included in the test year forecast. Please provide the following:

- a. Please list the Governmental Relations and Public Affairs positions included in the 2005 test year forecast.
- b. Please list the actual Governmental Relations and Public Affairs positions as of February 2005.
- c. For each position identified in response to items (a) and (b) above, please provide a copy of the written job description. If no formal job descriptions exist, please explain the absence of such documentation and provide a detailed discussion of the duties and responsibilities of each position.

HECO Response:

- a. Public Affairs positions (2): Senior Vice President and Executive Secretary
Government Relations positions (3): Director, Administrative Assistant, and
Department Temporary
- b. Public Affairs positions (2): Senior Vice President and Executive Secretary
Government Relations positions (3): Manager, Director, Administrative Assistant
- c. Written job descriptions for the positions in items (a) and (b) are provided on pages 2-8

HAWAIIAN ELECTRIC COMPANY

POSITION DESCRIPTION

Position Title: Senior Vice President, Public Affairs
Reports to: President & CEO

Job Code:

Date: 6/15/01

FLSA:

E

GRADE:

E07

Primary Role/Function

Provides leadership and management to the public affairs operations. Oversees the formulation, development and implementation of strategies covering public affairs in such areas as corporate communications, regulatory, government, education and community affairs. Accountable for ensuring the company achieves it's mission, as well as its short- and long-term goals.

Job Responsibilities

- * 60% Oversees all aspects of the public affairs operations. This includes legislative, community and regulatory affairs, and the corporate communications function (internal and external). Ensures the proper translation of the strategic and tactical business plans into short- and long-range public affairs strategic and operational plans. Manages the budget and other financial measures of the function.
- * 10% Responsible for the growth and profitability of the organization. Provides strategic input and leadership on decision-making issues affecting the Company. Participates in the development of the Company's plans and programs. Works closely with the President & CEO to accomplish the goals and objectives and strategic plan established in cooperation with the Board of Directors.
- * 10% Manages relationships with government agencies, customers, suppliers and the public. Ensures that all corporate activities and operations within the functional area are carried out in compliance with state and federal laws and regulations.
- * 10% Represents the company at various community activities. Is actively involved with community and professional organizations and associations and maintains relationships with other businesses active in the company's areas of operation and, together with other officers, promotes the public relations and business development of the company. Serves as a member on such committees or boards as appropriate.

50%

**HAWAIIAN ELECTRIC COMPANY
MERIT
POSITION DESCRIPTION**

Position Title: Executive Secretary
Department: Sr. VP, Public Affairs
Reports to: Sr. VP, Public Affairs

Job Code: S2149S2
Role: I

FLSA: N/E
Date: 7-1-01

Primary Role/Function

Provides secretarial and administrative support to the Office of the Sr. Vice President, Public Affairs.

Job Responsibilities

- | | | |
|---|-----|--|
| * | 40% | Manages schedule, prioritizing appointments and meetings. Develops agenda for senior staff meetings, prepares and finalizes minutes and distributes. Coordinates all staff activities and researches issues and documents and gathers information from various internal and external sources to assist in preparation for meetings and presentations. Acts as staff liaison between Sr. Vice-President, Public Affairs and utility Vice Presidents, subsidiary presidents, and HEI officers. Coordinates activities among departments for cross-functional activities. |
| * | 30% | Provides staff support for corporate goals and certain senior management functions. Maintains budget, cost, forecast and/or similar records. Assembles and |

**HAWAIIAN ELECTRIC COMPANY
MERIT
POSITION DESCRIPTION**

Position Title: Manager, Government Relations
Department: Government Relations
Reports to: SVP, Public Affairs

Job Code: M234

Role: E

FLSA: E

Date: 12/01/04

Primary Role/Function

Develops, implements and administers the organization's statewide political action and government relations activities. Represents the organization to the state and/or federal government on proposed legislation of vital concern to the organization. Forms and nurtures a constructive relationship with legislative bodies, critical government staffers and the Public Utilities Commission.

Job Responsibilities

- * 30 Oversees all department activities including identification of critical community and political issues and concerns and recommendation of actions designed to address them. Coordinates HECO response to legislative and executive branch issues, bills and resolutions at the federal, state and county level, including monitoring legislation that may impact the Company.
- * 30 Coordinates lobbying efforts regarding local, state and federal officials, either in a proactive or defensive position, to influence legislation impacting the Company and industry.
- * 20 Works with senior management on governmental relations and consults with HECO departments to present a consolidated, cohesive message to regulators, legislators and consumers.
- * 10 Assumes a leadership position within the industry and industry associations to garner support in guiding industry direction locally and nationally.
- * 5 Manages and administers all department personnel matters including interviews, performance appraisals, disciplinary actions, training and development. Determines Department's present and forecasted operational needs for budgeting purposes.
- * 5 Assists HEI and its subsidiaries in developing and administering their government relations programs, including the monitoring of legislation on their behalf.

* Denotes a "Fundamental Responsibility"

**MERIT
POSITION DESCRIPTION**

Position Title: Director, Government Relations
Department: Government Relations
Reports to: Manager, Government Relations

Job Code: S2132

Role: FS

FLSA: A

Date: 12-01-04

Primary Role/Function

Assists with all department activities to develop , implement and coordinate government relations programs for energy utilities, including identification of critical community and political issues and concerns and recommendation of actions designed to address them and further HEI goals and objectives. Monitors legislative issues for HEI companies.

Job Responsibilities

- * 50 Assists with coordinating HECO response to legislative and executive branch issues, bills and resolutions at the federal, state and county level, including the monitoring of legislation that may impact the Company.
- * 5 Assists HEI and its subsidiaries in developing and administering their government relations programs, including the monitoring of legislation on their behalf.
- * 15 Represents the Company, including presentations of the Company's position on critical issues to public and elected officials, including state and local agencies. Conversely, presents critical legislative concerns to the Company. Occasionally conducts tours of the facilities for community leaders and legislative personnel.
- * 15 Identifies issues of concern to HECO and HEI in the political and community arena and develops programs to address these concerns to help foster public understanding and a favorable attitude toward the Company; advises HECO management about legislative and community concerns that may affect operations.
- * 5 Serves as HECO's representative on the HEI Tactical Government Relations Group, insuring that effective government relations policy is implemented on behalf of HECO at the HEI level. Serves on the HECO Government Relations Group as well as interdepartmental and project task forces as necessary; and serves on the HECO 's Speaker's Bureau.
- * 5 Coordinates and insures success of HECO employee/government contact program.
- * 5 Coordinates HECO government relations internships at the legislature. Provides input for political donations by the HEI Committee for Effective Government; represents the Company at political fund-raisers.

* Denotes a "Fundamental Responsibility"

**HAWAIIAN ELECTRIC COMPANY
MERIT
POSITION DESCRIPTION**

Position Title: Administrative Assistant
Department: Government Relations
Reports to: Director, Government Relations

Job Code: S2133

Role: I

FLSA: N

Date: 10-1-95

Primary Role/Function

Provides administration and secretarial support service to the Director, Government Relations.

Job Responsibilities

- * 20 Acts as liaison between Director, Legislative and Executive department staff and assists Director in establishing and maintaining sound relations with the staff of key government officials; works closely with counterparts in other business organizations in coordinating government relations schedules and activities.
- * 20 Performs all secretarial duties, including but not limited to typing and filing work for the Director, Government Relations.
- * 25 Monitors and tracks legislation affecting HECO and its subsidiaries and keeps legislative tracking and monitoring system up-to-date. Helps with the preparation of reports on government activities as directed by the Director.
- * 5 Does legislative research and provides status reports on items pending before the legislature and government agencies as assigned by the Director.
- * 5 Attends and monitors legislative hearings as required.
- * 5 Establish and maintain records of pertinent legislative hearings, bills and reports related to HECO and its operating companies. Works cooperatively and collaborates closely with HEI government relations and other HEI and HECO operating subsidiaries in maintaining a comprehensive legislative library.
- * 5 Maintains a close information network with legislative coordinators from HECO and its subsidiaries.
- * 5 Assists in the preparation of the government relations budget and forecast report.

Administrative Assistant S2133

*	5	Coordinates attendance at political and legislative events; attends political fund-raisers as determined by the Director to ensure HECO presentation.
*	5	Performs certain services, if, and as required, under agreement between HECO and HEI. Such services include: <ul style="list-style-type: none">• Monitoring and tracking legislation• Maintaining information network with legislative coordinators

*** Denotes a "Fundamental Responsibility"**

HAWAIIAN ELECTRIC COMPANY
HAWAIIAN ELECTRIC COMPANY
"TEMPORARY"
POSITION DESCRIPTION

Position Title: Department Temporary
Department: Government Relations
Reports to: Director, Government Relations

Job Code: Not Applicable
Role: Temporary

FLSA: N
Date: 2/27/04

Primary Role/Function

Provides temporary administrative support to the Director, Government Relations.

Job Responsibilities

- * 30% Retrieves bills, resolutions, hearing notices and committee reports from the State Capitol on a daily basis and delivers to Director, Government Relations for monitoring, tracking and inputting of bill status.

* 20%

CA-IR-514

Ref: CA-IR-86.

- a. Is the noted \$80,132,009 of updated total utility book depreciation and amortization expense supposed to be \$80,079,731?
- b. If no, please provide a listing of FERC plant subaccounts depreciation accruals that should be summed to arrive at the noted \$80,132,009.

HECO Response:

- a. The 2005 updated total utility book depreciation and amortization expense is \$80,079,731, before any amortization expense for the leased property discussed in response to CA-IR-260.
- b. The \$80,079,731 total utility book depreciation and amortization expense is the sum of book depreciation of \$73,931,522 (calculation shown on CA-IR-86 page 2 of 3), and book amortization of \$6,148,209 (calculation shown on CA-IR-86 page 3 of 3). As noted in response to CA-IR-260, the amortization expense will be increased by \$521,315 for the leased property. Thus the depreciation and amortization expense will be \$80,601,046.

CA-IR-515

Ref: HECO-WP-1602.

Please provide an update of 2005 estimated Amortization of CIAC based upon 2004 actual receipts, transfers, etc.

HECO Response:

The 2005 updated amortization of CIAC based on 2004 actual receipts, transfers, etc. is

\$7,483,701. See calculation at CA-IR-515 Page 2 of 2.

Hawaiian Electric Company, Inc.
Amortization of CIAC
Test Year 2005
(\$ in Thousands)

		Recorded 2003	Recorded 2004	Test Year Estimate 2005
Amortization through 2002		6,924	6,872	6,809
<u>Amortization of 2003 Vintage</u>				
Receipts	12,330			
Plus: Transfers from Cust Adv	110			
Base for Amortization	12,440			
Divided by 30	30			
Subtotal	415		415	415
<u>Amortization of 2004 Vintage</u>				
Receipts	7,743			
Plus: Transfers from Cust Adv	51			
Base for Amortization	7,794			
Divided by 30	30			
Subtotal	260			260
Annual Amortization of CIAC			<u>7,287</u>	<u>7,484</u>

Please provide an update of 2005 estimated Amortization of SFAS 109 regulatory assets, including underlying workpapers, based upon 2004 actual plant addition activities.

HECO Response:

The 2005 updated amortization of SFAS 109 regulatory assets is \$813,801 as shown on page 2 of this response. The increase in the estimated amortization (debit) of SFAS 109 regulatory assets over the estimate in the direct submission (HECO-1706 and supporting workpapers) is due primarily to a correction in the amount amortized for the regulatory liability related to Federal ITC. This revision was identified in the direct submission at HECO-WP-1706, correcting for the amortization related to the 1971 Act Federal ITC Carryback. This account was fully amortized

HAWAIIAN ELECTRIC COMPANY, INC.
AMORTIZATION OF SFAS 109 ITEMS
2005

	Expense DR(CR) Annual Amorization
CWIP Equity Transition Account #18673100 (amort account #40330003)	90,195
Flow Through Account #18673200 (amort account #40330001)	326,301
Plant Transition Account #18673300 (amort account #40330002)	1,022,958
CWIP Equity Ongoing Account #18673400 (amort Account #40330004)	840,033
Reg Liability-Fed ITC Account #18673500 (amort account #40330006)	(576,929)
Reg Liability-Excess Def'd 283 Account #18673900 (amort account #40330009)	(57,600)
Reg Liability-Deficit Def'd 283 Account #18673190 (amort account #40330010)	(37,544)
Reg Liability-Excess Def'd 282 Account #18673110 (amort account #40330012)	(904,295)
Reg Asset-Deficit Def'd 282 Account #18673120 (amort account #40330013)	110,682
Total	813,801

CA-IR-517

Ref: Response to CA-IR-193 addressing “Excess” Deferred Income Tax Balances.

- a. Please provide the development of the net excess deferred tax balance as determined in 1998, tying “per book” net plant amounts in total used in such calculation to Form 1 reported amounts.
- b. Provide the basis for determining the “average remaining life” used to amortize the excess deferred tax balance.
- c. If such schedule has been prepared, provide the total electric turnaround of excess deferred tax amount by year as calculated adhering strictly to the average rate assumption method.
- d. Are the “deficit” deferred income tax balances being amortized over the same period as the “excess” deferred income tax balances? If no:
 1. Over what period are the “deficit” deferred income taxes being amortized
 2. Explain the basis or reason for amortize “deficit” deferred income taxes over a different period than the “excess” deferred income taxes.

HECO Response:

- a. The attached workpapers support the 1998 calculation. See pages 3 – 15 to this response.
- b. At 12/31/87, it was determined that the average remaining life of utility plant was 19.95 years, rounded to 20 years. This remaining life was used in amortizing the remaining excess in 2001 and subsequent.
- c. The workpapers or schedule computing the average remaining life is not available but it was based on the plant balances and lives of Company assets in 1987.

Note that the move to the Reverse South Georgia Method was implemented because the average rate assumption method (“ARAM”) schedule prepared in 1998 would have amortized out all excess deferred taxes within approximately 4 years. This appeared unreasonable and the Company decided to move back to the remaining life method. This was believed to be in compliance with tax normalization requirements because the

amortization was less than the “calculated” ARAM amount, and the Reverse South Georgia method was an acceptable method since our records were not sufficient to compute an accurate ARAM amortization.

- d. No.
- d1. The deficit deferred income taxes are being amortized over 33 years.
- d2. Deficit deferred income taxes relate to years 1988-1992, when the federal corporate income tax rate was 34%. The federal rate increased to 35% in 1993. When the company implemented Statement on Financial Accounting Standards Number 109 (SFAS 109) in 1993, the additional 1% of deferred taxes had to be recorded to account for the fact that book/tax temporary differences which were set up at 34% would be reversing at 35%. This 1% is being amortized over 33 years, the average life of plant determined at that time. See further explanation of deficit deferred taxes at HECO T-17, pages 18-19.

Excess deferred taxes on accelerated depreciation relate to years 1971-1987, when the federal corporate income tax rate was higher than the current 35%. The reversal of the excess deferred taxes will be completed sooner than the deficit deferred taxes, which originated at a later time period. See explanation of excess deferred income taxes at HECO T-17, pages 14-18.

HAWAIIAN ELECTRIC COMPANY, INC.
1998 AMORTIZATION OF EXCESS DEFERRED TAXES

(AVERAGE RATE ASSUMPTION METHOD "ARAM")
REVERSING VINTAGES ONLY)

	1998 DEFERRED FEDERAL INCOME TAX	DEFD FEDERAL TAX @ REDUCED CORP RATE @ 31.9548870%	EXCESS DEFERRED FED INCOME TAX AT 12/31/98	1998 DEFERRED HAWAII INCOME TAX	DEFD HI TAX AT REDUCED CORP RATE @ 6.0150376%	EXCESS DEFERRED HI INCOME TAX AT 12/31/98	TOTAL EXCESS DEF 1998
--	---	---	---	--	--	--	-----------------------------

VINTAGE YEAR 1971

70.11 OFFICE FURN, FIX, EQUIP

1997							
1998	(3,545.61)	(2,452.54)	(1,093.07)	(464.05)	(461.69)	(2.37)	(1,095.44)
1999							
2000							
TOTAL							

49.130 STEAM PRODUCTION PLANT

1997							
1998	(17,179.33)	(12,304.87)	(4,874.46)	(2,328.04)	(2,316.37)	(11.67)	(4,886.13)
1999							
2000							
TOTAL							

49.130 GENERATION STRUCTURES

1997							
1998	(288.16)	(208.35)	(79.81)	(39.41)	(39.22)	(0.19)	(80.00)
1999							
2000							
TOTAL							

49.140 T & D AND OTHERS

1997							
1998	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1999							
2000							
TOTAL							

49.130 GARAGE & MACHINE SHOPS

1997							
1998	(3,928.55)	(2,840.47)	(1,088.08)	(537.36)	(534.71)	(2.64)	(1,090.72)
1999							
2000							
TOTAL							

VINTAGE YEAR 1972

70.110 OFFICE FURN & EQUIP

1997							
1998	(899.10)	(625.68)	(273.42)	(118.25)	(117.78)	(0.47)	(273.89)
1999							
2000							
TOTAL							

49.13 STEAM PRODUCTION PLANT

1997							
1998	(245,404.60)	(175,900.47)	(69,504.13)	(33,279.89)	(33,112.89)	(166.99)	(69,671.13)
1999							
2000							

HAWAIIAN ELECTRIC COMPANY, INC.
1998 AMORTIZATION OF EXCESS DEFERRED TAXES

(AVERAGE RATE ASSUMPTION METHOD "ARAM")
REVERSING VINTAGES ONLY)

		1998 DEFERRED FEDERAL INCOME TAX	DEFD FEDERAL TAX @ REDUCED CORP RATE @ 31.9548870%	EXCESS DEFERRED FED INCOME TAX AT 12/31/98	1998 DEFERRED HAWAII INCOME TAX	DEFD HI TAX AT REDUCED CORP RATE @ 6.0150376%	EXCESS DEFERRED HI INCOME TAX AT 12/31/98	TOTAL EXCESS DEF 1998
	TOTAL							
49.14	T & D OTHERS							
	1997							
	1998	(243,836.40)	(174,982.72)	(68,853.67)	(33,107.20)	(32,940.13)	(167.07)	(69,020.75)
	1999							
	2000							
	TOTAL							
65.41	OFFICE BUILDINGS							
	1997							
	1998	(552.35)	(401.03)	(151.32)	(75.88)	(75.49)	(0.39)	(151.71)
	1999							
	2000							
	TOTAL							
<u>VINTAGE YEAR 1973</u>								
70.11	OFFICE FURN & EQUIP							
	1997							
	1998	(756.64)	(529.81)	(226.83)	(100.19)	(99.74)	(0.45)	(227.28)
	1999							
	2000							
	TOTAL							
70.13	DATA HANDLING EQUIPMENT							
	1997							
	1998	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1999							
	2000							
	TOTAL							
49.14	STEAM PRODUCTION PLANT							
	1997							
	1998	(167,036.18)	(120,199.91)	(46,836.27)	(22,741.82)	(22,627.38)	(114.44)	(46,950.71)
	1999							
	2000							
	TOTAL							
49.14	T & D OTHERS							
	1997							
	1998	(334,149.43)	(240,802.76)	(93,346.67)	(45,558.54)	(45,330.61)	(227.92)	(93,574.59)
	1999							
	2000							
	TOTAL							
65.13	MACHINE SHOPS							
	1997							
	1998	(299.14)	(219.85)	(79.29)	(41.52)	(41.39)	(0.13)	(79.42)
	1999							
	2000							
	TOTAL							

HAWAIIAN ELECTRIC COMPANY, INC.
1998 AMORTIZATION OF EXCESS DEFERRED TAXES

('AVERAGE RATE ASSUMPTION METHOD "ARAM")
REVERSING VINTAGES ONLY)

	1998 DEFERRED FEDERAL INCOME TAX	DEFD FEDERAL TAX @ REDUCED CORP RATE @ 31.9548870%	EXCESS DEFERRED FED INCOME TAX AT 12/31/98	1998 DEFERRED HAWAII INCOME TAX	DEFD HI TAX AT REDUCED CORP RATE @ 6.0150376%	EXCESS DEFERRED HI INCOME TAX AT 12/31/98	TOTAL EXCESS DEF 1998
65.41 OFFICE BUILDINGS							
1997							
1998	(91.26)	(67.11)	(24.15)	(12.68)	(12.63)	(0.05)	(24.20)
1999							
2000							
TOTAL							
<u>VINTAGE YEAR 1974</u>							
70.11 OFFICE FURN & EQUIP							
1997							
1998	(112.22)	(79.25)	(32.98)	(15.10)	(14.92)	(0.18)	(33.15)
1999							
2000							
TOTAL							
70.13 DATA HANDLING EQUIP							
1997							
1998	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1999							
2000							
TOTAL							
49.13 STEAM PRODUCTION PLANT							
1997							
1998	(463,394.65)	(336,840.94)	(126,553.72)	(63,721.05)	(63,409.60)	(311.45)	(126,865.17)
1999							
2000							
TOTAL							
49.14 T & D OTHERS							
1997							
1998	(333,954.84)	(241,979.02)	(91,975.82)	(45,778.33)	(45,552.04)	(226.29)	(92,202.11)
1999							
2000							
TOTAL							
49.15 GAS TURBINE							
1997							
1998	(9,861.21)	(7,096.54)	(2,764.67)	(1,342.70)	(1,335.91)	(6.80)	(2,771.47)
1999							
2000							
TOTAL							
<u>VINTAGE YEAR 1975</u>							
11 OFFICE FURN & EQUIP							
1997							
1998	(253.01)	(179.91)	(73.10)	(34.02)	(33.87)	(0.16)	(73.26)
1999							
2000							

HAWAIIAN ELECTRIC COMPANY, INC.
1998 AMORTIZATION OF EXCESS DEFERRED TAXES
(AVERAGE RATE ASSUMPTION METHOD "ARAM")
REVERSING VINTAGES ONLY)

	1998 DEFERRED FEDERAL INCOME TAX	DEFD FEDERAL TAX @ REDUCED CORP RATE @ 31.9548870%	EXCESS DEFERRED FED INCOME TAX AT 12/31/98	1998 DEFERRED HAWAII INCOME TAX	DEFD HI TAX AT REDUCED CORP RATE @ 6.0150376%	EXCESS DEFERRED HI INCOME TAX AT 12/31/98	TOTAL EXCESS DEF 1998
TOTAL							
70.13 DATA HANDLING EQUIP							
1997							
1998	(786.90)	(551.40)	(235.49)	(104.30)	(103.80)	(0.50)	(235.99)
1999							
2000							
TOTAL							
49.14 STEAM PRODUCTION							
1997							
1998	(41,447.31)	(30,178.83)	(11,268.48)	(5,709.06)	(5,681.10)	(27.95)	(11,296.43)
1999							
2000							
TOTAL							
49.14 T & D PLANT OTHER							
1997							
1998	(291,458.75)	(212,218.48)	(79,240.28)	(40,146.25)	(39,949.68)	(196.57)	(79,436.85)
1999							
2000							
TOTAL							
VINTAGE YEAR 1976							
70.11 OFFICE FURN & EQUIP							
1997							
1998	(174.41)	(125.26)	(49.15)	(23.76)	(23.58)	(0.18)	(49.32)
1999							
2000							
TOTAL							
70.13 DATA HANDLING EQUIP							
1997							
1998	(302.12)	(214.10)	(88.02)	(40.76)	(40.30)	(0.46)	(88.48)
1999							
2000							
TOTAL							
49.13 STEAM PRODUCTION							
1997							
1998	(144,636.38)	(105,313.40)	(39,322.98)	(19,922.57)	(19,825.03)	(97.55)	(39,420.53)
1999							
2000							
TOTAL							
70.13 T & D PLANT OTHER							
1997							
1998	(234,924.86)	(166,481.45)	(68,443.41)	(31,696.72)	(31,339.78)	(356.94)	(68,800.35)
1999							
2000							

HAWAIIAN ELECTRIC COMPANY, INC.
1998 AMORTIZATION OF EXCESS DEFERRED TAXES

(AVERAGE RATE ASSUMPTION METHOD "ARAM")
(REVERSING VINTAGES ONLY)

		1998 DEFERRED FEDERAL INCOME TAX	DEFD FEDERAL TAX @ REDUCED CORP RATE @ 31.9548870%	EXCESS DEFERRED FED INCOME TAX AT 12/31/98	1998 DEFERRED HAWAII INCOME TAX	DEFD HI TAX AT REDUCED CORP RATE @ 6.0150376%	EXCESS DEFERRED HI INCOME TAX AT 12/31/98	TOTAL EXCESS DEF 1998
	TOTAL							
49.15	GAS TURBINES							
	1997							
	1998	(2,874.06)	(2,091.77)	(782.30)	(395.65)	(393.77)	(1.88)	(784.18)
	1999							
	2000							
	TOTAL							
<u>VINTAGE YEAR 1977</u>								
00.11	OFFICE FURN & EQUIP							
	1997							
	1998	(60.87)	(44.10)	(16.77)	(8.37)	(8.30)	(0.07)	(16.84)
	1999							
	2000							
	TOTAL							
00.13	DATA HANDLING EQUIP							
	1997							
	1998	(1,105.73)	(793.44)	(312.29)	(150.04)	(149.36)	(0.68)	(312.97)
	1999							
	2000							
	TOTAL							
49.14	T & D PLANT OTHER							
	1997							
	1998	(123,740.33)	(93,505.43)	(30,234.90)	(17,679.81)	(17,602.20)	(77.61)	(30,312.51)
	1999							
	2000							
	TOTAL							
49.13	STEAM PRODUCTION							
	1997							
	1998	(30,204.67)	(22,824.42)	(7,380.26)	(4,315.59)	(4,296.65)	(18.94)	(7,399.20)
	1999							
	2000							
	TOTAL							
49.15	GAS TURBINES							
	1997							
	1998	(9,649.68)	(6,924.30)	(2,725.37)	(1,309.40)	(1,303.49)	(5.91)	(2,731.29)
	1999							
	2000							
	TOTAL							
<u>VINTAGE YEAR 1978</u>								
11	OFFICE FURN & EQUIP							
	1997							
	1998	(276.88)	(203.23)	(73.65)	(38.46)	(38.26)	(0.21)	(73.85)
	1999							
	2000							

HAWAIIAN ELECTRIC COMPANY, INC.
1998 AMORTIZATION OF EXCESS DEFERRED TAXES
(AVERAGE RATE ASSUMPTION METHOD "ARAM")
(REVERSING VINTAGES ONLY)

	1998 DEFERRED FEDERAL	DEFD FEDERAL TAX @ REDUCED CORP RATE @	EXCESS DEFERRED FED INCOME TAX	1998 DEFERRED HAWAII	DEFD HI TAX AT REDUCED CORP RATE @	EXCESS DEFERRED HI INCOME TAX	TOTAL EXCESS DEF -
--	-----------------------------	--	--------------------------------------	----------------------------	--	-------------------------------------	-----------------------

		<u>INCOME TAX</u>	<u>31.9548870%</u>	<u>AT 12/31/98</u>	<u>INCOME TAX</u>	<u>6.0150376%</u>	<u>AT 12/31/98</u>	<u>1998</u>
	TOTAL							
00.12	INFORMATION SYSTEM EQUIP							
	TOTAL							
00.13	DATA HANDLING EQUIP							
	1997							
	1998	(417.66)	(305.17)	(112.49)	(57.76)	(57.45)	(0.31)	(112.80)
	1999							
	2000							
	TOTAL							
49.15	STEAM PRODUCTION							
	1997							
	1998	(24,455.82)	(18,707.99)	(5,747.83)	(3,536.46)	(3,521.74)	(14.72)	(5,762.56)
	1999							
	2000							
	TOTAL							
49.15	T & D PLANT OTHER							
	1997							
	1998	(103,203.25)	(77,798.97)	(25,404.28)	(14,710.63)	(14,645.49)	(65.14)	(25,469.42)
	1999							
	2000							
	TOTAL							
49.15	GAS TURBINES							
	1997							
	1998	(6,059.94)	(4,348.42)	(1,711.52)	(822.30)	(818.58)	(3.71)	(1,715.23)
	1999							
	2000							
	TOTAL							

VINTAGE YEAR 1979

00.11 OFFICE FURN & EQUIP

HAWAIIAN ELECTRIC COMPANY, INC.
1998 AMORTIZATION OF EXCESS DEFERRED TAXES

(AVERAGE RATE ASSUMPTION METHOD "ARAM")

REVERSING VINTAGES ONLY)		1998	DEFD FEDERAL	EXCESS	1998	DEFD HI TAX	EXCESS	TOTAL
		DEFERRED	TAX @ REDUCED	DEFERRED FED	DEFERRED	AT REDUCED	DEFERRED HI	EXCESS DEF
		FEDERAL	CORP RATE @	INCOME TAX	HAWAII	CORP RATE @	INCOME TAX	1998
		<u>INCOME TAX</u>	<u>31.9548870%</u>	<u>AT 12/31/98</u>	<u>INCOME TAX</u>	<u>6.0150376%</u>	<u>AT 12/31/98</u>	<u>1998</u>
1998		(131,203.44)	(98,891.11)	(32,312.33)	(18,701.31)	(18,616.04)	(85.27)	(32,397.61)
1999								
2000								
TOTAL								
49.13	STEAM PRODUCTION							
1997								
1998		(10,481.55)	(8,157.76)	(2,323.79)	(1,547.27)	(1,535.68)	(11.59)	(2,335.38)
1999								
2000								
TOTAL								
49.15	GAS TURBINES							
1997								
1998		(15.11)	(11.50)	(3.61)	(2.16)	(2.17)	0.01	(3.60)
1999								
2000								
TOTAL								
<u>VINTAGE YEAR 1980</u>								
00.11	OFFICE FURN & EQUIP							
1997								
1998		(296.55)	(219.53)	(77.02)	(41.54)	(41.33)	(0.21)	(77.23)
1999								
2000								
TOTAL								
00.12	INFORMATION SYSTEM EQUIP							
TOTAL								
00.13	DATA HANDLING EQUIP							
1997								
1998		(4,045.66)	(2,991.30)	(1,054.36)	(566.14)	(563.11)	(3.03)	(1,057.39)
1999								
2000								
TOTAL								
49.13	STEAM PRODUCTION							
1997								
1998		(107,952.48)	(85,483.48)	(22,469.00)	(16,149.66)	(16,092.08)	(57.58)	(22,526.58)
1999								
2000								
TOTAL								
49.15	T & D PLANT OTHER							
1997								
1998		(61,990.21)	(47,312.73)	(14,677.49)	(8,945.06)	(8,906.52)	(38.54)	(14,716.02)
1999								
2000								
TOTAL								

HAWAIIAN ELECTRIC COMPANY, INC.
1998 AMORTIZATION OF EXCESS DEFERRED TAXES

('AVERAGE RATE ASSUMPTION METHOD "ARAM")

REVERSING VINTAGES ONLY)

		1998 DEFERRED FEDERAL INCOME TAX	DEFD FEDERAL TAX @ REDUCED CORP RATE @ 31.9548870%	EXCESS DEFERRED FED INCOME TAX AT 12/31/98	1998 DEFERRED HAWAII INCOME TAX	DEFD HI TAX AT REDUCED CORP RATE @ 6.0150376%	EXCESS DEFERRED HI INCOME TAX AT 12/31/98	TOTAL EXCESS DEF 1998
49.15	GAS TURBINES							
	1997							
	1998	(4,692.29)	(3,619.85)	(1,072.44)	(684.20)	(681.43)	(2.77)	(1,075.22)
	1999							
	2000							
	TOTAL							

VINTAGE YEAR 1981

00.11 OFFICE FURN EQUIP

1997							
1998	(457.70)	(338.40)	(119.30)	(63.98)	(63.70)	(0.28)	(119.58)
1999							
2000							
TOTAL							

00.12 INFORMATION SYSTEM EQUIP

TOTAL

00.13 DATA HANDLING EQUIP

1997							
1998	(1,428.79)	(1,056.43)	(372.36)	(199.92)	(198.87)	(1.05)	(373.41)
1999							
2000							
TOTAL							

49.13 PRODUCTION

1997							
1998	(680,758.82)	(563,418.66)	(117,340.15)	(106,362.58)	(106,062.37)	(300.21)	(117,640.36)
1999							
2000							
TOTAL							

49.14 TRANSMISSION, DISTRIB & OTHERS

1997							
1998	(176,356.70)	(144,886.97)	(31,469.72)	(27,062.89)	(27,274.67)	211.78	(31,257.95)
1999							
2000							
TOTAL							

48.20 COMMUNICATION EQUIP

TOTAL

49.15 GAS TURBINES

1997							
1998	(1,306.13)	(937.24)	(368.89)	(177.23)	(176.43)	(0.80)	(369.69)
1999							
2000							
TOTAL							

VINTAGE YEAR 1982

HAWAIIAN ELECTRIC COMPANY, INC.
1998 AMORTIZATION OF EXCESS DEFERRED TAXES

(AVERAGE RATE ASSUMPTION METHOD "ARAM")
REVERSING VINTAGES ONLY)

		1998 DEFERRED FEDERAL INCOME TAX	DEFD FEDERAL TAX @ REDUCED CORP RATE @ 31.9548870%	EXCESS DEFERRED FED INCOME TAX AT 12/31/98	1998 DEFERRED HAWAII INCOME TAX	DEFD HI TAX AT REDUCED CORP RATE @ 6.0150376%	EXCESS DEFERRED HI INCOME TAX AT 12/31/98	TOTAL EXCESS DEF 1998
00.11	OFFICE FURN & EQUIP							
	1997							
	1998	(310.78)	(229.76)	(81.02)	(43.44)	(43.25)	(0.19)	(81.21)
	1999							
	2000							
	TOTAL							
00.48	INFORMATION SYSTEMS EQUIP							
00.13	DATA HANDLING EQUIP							
	1997							
	1998	(625.80)	(462.71)	(163.09)	(87.55)	(87.10)	(0.44)	(163.53)
	1999							
	2000							
	TOTAL							
49.13	PRODUCTION							
	1997							
	1998	(52,057.27)	(43,784.27)	(8,273.00)	(8,262.44)	(8,242.30)	(20.15)	(8,293.15)
	1999							
	2000							
	TOTAL							
49.14	T & D & OTHERS							
	1997							
	1998	(125,921.95)	(103,137.91)	(22,784.04)	(19,513.00)	(19,415.49)	(97.51)	(22,881.55)
	1999							
	2000							
	TOTAL							
49.15	GAS TURBINES							
	1997							
	1998	(272.30)	(222.73)	(49.58)	(42.13)	(41.93)	(0.20)	(49.78)
	1999							
	2000							
	TOTAL							
48.2	COMMUNICATION EQUIP							
	1997							
	1998	(4,987.53)	(4,059.23)	(928.30)	(765.17)	(764.14)	(1.03)	(929.33)
	1999							
	2000							
	TOTAL							

HAWAIIAN ELECTRIC COMPANY, INC.
1998 AMORTIZATION OF EXCESS DEFERRED TAXES
(AVERAGE RATE ASSUMPTION METHOD "ARAM")
REVERSING VINTAGES ONLY)

		1998 DEFERRED FEDERAL <u>INCOME TAX</u>	DEFD FEDERAL TAX @ REDUCED CORP RATE @ <u>31.9548870%</u>	EXCESS DEFERRED FED INCOME TAX <u>AT 12/31/98</u>	1998 DEFERRED HAWAII <u>INCOME TAX</u>	DEFD HI TAX AT REDUCED CORP RATE @ <u>6.0150376%</u>	EXCESS DEFERRED HI INCOME TAX <u>AT 12/31/98</u>	TOTAL EXCESS DEF <u>1998</u>
00.12	INFORMATION SYSTEM EQUIP							
	TOTAL - FEDERAL							
	TOTAL - HAWAII							
00.13	DATA HANDLING EQUIP							
	1997							
	1998	(3,866.51)	(2,944.64)	(921.86)	0.00	0.00	0.00	(921.86)
	1999							
	2000							
	TOTAL - FEDERAL							
	1997							
	1998	0.00	0.00	0.00	(585.86)	(583.50)	(2.37)	(2.37)
	1999							
	2000							
	TOTAL - HAWAII							
49.13	STEAM PRODUCTION							
	1997							
	1998	(31,757.51)	(27,385.34)	(4,372.18)	0.00	0.00	0.00	(4,372.18)
	1999							
	2000							
	TOTAL - FEDERAL							
	HAWAII PURPOSES							
	1998	0.00	0.00	0.00	(5,077.95)	(5,413.90)	335.94	335.94
	1999							
	2000							
	TOTAL - HAWAII							
49.13	TRANSMISSION, DISTRIBUTION & OTHERS							
	1997							
	1998	(142,715.49)	(121,050.86)	(21,664.63)	0.00	0.00	0.00	(21,664.63)
	1999							
	2000							
	TOTAL - FEDERAL							
	HAWAII PURPOSES							
	1997							
	1998	0.00	0.00	0.00	(23,871.99)	(23,986.87)	114.88	114.88
	1999							
	2000							
	TOTAL - HAWAII							
48.20	COMMUNICATIONS EQUIPMENT							
	1997							
	1998	(12,358.33)	(19,166.22)	6,807.89	0.00	0.00	0.00	6,807.89
	1999							
	2000							
	TOTAL - FEDERAL							

HAWAIIAN ELECTRIC COMPANY, INC.
1998 AMORTIZATION OF EXCESS DEFERRED TAXES

(AVERAGE RATE ASSUMPTION METHOD "ARAM")

(REVERSING VINTAGES ONLY)

	1998 DEFERRED FEDERAL INCOME TAX	DEFD FEDERAL TAX @ REDUCED CORP RATE @ 31.9548870%	EXCESS DEFERRED FED INCOME TAX AT 12/31/98	1998 DEFERRED HAWAII INCOME TAX	DEFD HI TAX AT REDUCED CORP RATE @ 6.0150376%	EXCESS DEFERRED HI INCOME TAX AT 12/31/98	TOTAL EXCESS DEF 1998
HAWAII PURPOSES							
1997							
1998	0.00	0.00	0.00	(4,149.16)	(4,178.99)	29.83	29.83
1999							
2000							
TOTAL - HAWAII							
49.15 COMBUSTION TURBINES							
1997							
1998	(289.01)	(243.50)	(45.51)	0.00	0.00	0.00	(45.51)
1999							
2000							
TOTAL - FEDERAL							
HAWAII PURPOSES							
1997							
1998	0.00	0.00	0.00	(63.08)	(48.30)	(14.77)	(14.77)
1999							
2000							
TOTAL - HAWAII							
<u>VINTAGE YEAR 1984</u>							
00.11 OFFICE FURN EQUIP							
1997							
1998	(837.55)	(672.01)	(165.54)	(126.92)	(126.50)	(0.41)	(165.95)
1999							
2000							
TOTAL							
00.12 INFORMATION SYSTEM EQUIP							
1997							
1998	(1,864.89)	(1,454.91)	(409.99)	(274.94)	(273.88)	(1.06)	(411.05)
1999							
2000							
TOTAL							
00.13 DATA HANDLING EQUIP							
1997							
1998	(3,779.84)	(3,030.28)	(749.55)	(572.16)	(570.44)	(1.71)	(751.27)
1999							
2000							
TOTAL							
49.13 STEAM PRODUCTION							
1997							
1998	(12,888.51)	(11,234.45)	(1,654.06)	(2,016.64)	(2,114.86)	98.22	(1,555.84)
1999							
2000							
TOTAL							

HAWAIIAN ELECTRIC COMPANY, INC.
1998 AMORTIZATION OF EXCESS DEFERRED TAXES

(AVERAGE RATE ASSUMPTION METHOD "ARAM")
(REVERSING VINTAGES ONLY)

	1998 DEFERRED FEDERAL INCOME TAX	DEFD FEDERAL TAX @ REDUCED CORP RATE @ 31.9548870%	EXCESS DEFERRED FED INCOME TAX AT 12/31/98	1998 DEFERRED HAWAII INCOME TAX	DEFD HI TAX AT REDUCED CORP RATE @ 6.0150376%	EXCESS DEFERRED HI INCOME TAX AT 12/31/98	TOTAL EXCESS DEF 1998
TOTAL							
49.15 GAS TURBINES							
1997							
1998	(114.10)	(98.74)	(15.36)	(18.54)	(18.59)	0.05	(15.31)
1999							
2000							
TOTAL							
48.20 COMMUNICATIONS EQUIPMENT							
TOTAL							
<u>VINTAGE YEAR 1985</u>							
00.11 OFFICE FURN EQUIP							
1997							
1998	(974.63)	(828.91)	(145.72)	(156.53)	(156.04)	(0.49)	(146.21)
1999							
2000							
TOTAL							
00.12 INFORMATION SYSTEM EQUIP							
1997							
1998	(1,924.47)	(1,629.06)	(295.41)	(307.35)	(306.67)	(0.68)	(296.09)
1999							
2000							
TOTAL							
00.13 DATA HANDLING EQUIP							
1997							
1998	(1,953.66)	(1,657.18)	(296.48)	(312.59)	(311.96)	(0.63)	(297.11)
1999							
2000							
TOTAL							
49.13 STEAM PRODUCTION							
TOTAL							
49.14 TRANSMISSION, DISTRIBUTION & OTHERS							
TOTAL							
49.15 GAS TURBINES							
1997							
1998	(423.59)	(380.58)	(43.01)	(71.52)	(71.64)	0.12	(42.89)
1999							
2000							
TOTAL							

VINTAGE YEAR 1986

00.11 OFFICE FURN EQUIP

HAWAIIAN ELECTRIC COMPANY, INC.

(AVERAGE RATE ASSUMPTION METHOD "ARAM")
REVERSING VINTAGES ONLY)

	1998 DEFERRED FEDERAL INCOME TAX	DEFD FEDERAL TAX @ REDUCED CORP RATE @ 31.9548870%	EXCESS DEFERRED FED INCOME TAX AT 12/31/98	1998 DEFERRED HAWAII INCOME TAX	DEFD HI TAX AT REDUCED CORP RATE @ 6.0150376%	EXCESS DEFERRED HI INCOME TAX AT 12/31/98	TOTAL EXCESS DEF 1998
1997							
1998	(2,657.72)	(2,335.58)	(322.13)	(440.54)	(439.67)	(0.87)	(323.00)
1999							
2000							

TOTAL

00.12 INFORMATION SYSTEM EQUIP

1997							
1998	(3,176.75)	(2,860.96)	(315.79)	(539.16)	(538.57)	(0.59)	(316.39)
1999							
2000							

TOTAL

00.13 DATA HANDLING EQUIP

1997							
1998	(739.12)	(626.95)	(112.17)	(118.26)	(118.02)	(0.24)	(112.40)
1999							
2000							

TOTAL

VINTAGE YEAR 1987

00.12 INFORMATION SYSTEM EQUIP

1997							
1998	(8,408.52)	(7,501.09)	(907.43)	(1,412.20)	(1,412.06)	(0.14)	(907.56)
1999							
2000							

TOTAL

00.11 FURNITURE & EQUIPMENT

1997							
1998	(3,049.52)	(2,815.55)	(233.98)	(529.95)	(530.02)	0.07	(233.91)
1999							
2000							

TOTAL

00.13 DATA HANDLING EQUIP

1997							
1998	(2,462.47)	(2,211.92)	(250.55)	(416.36)	(416.39)	0.03	(250.52)
1999							
2000							

CA-IR-518

Ref: HECO-WP-1907, page 28, addressing pension expense payment lag:

- a. Please provide the actual pension contribution payment(s) made by date(s) related to 2003 and 2004 pension costs. In other words, provide actual pension contributions (dates and amounts) attributable to calendar years 2003 and 2004 pension funding requirements/limitations as determined by minimum required (ERISA) and maximum tax deductible (IRC) contributions (or any amount in between) for each noted period.
- b. Please provide the mandatory pension contribution dates for any given calendar year as may be dictated/guided by the Internal Revenue Code, pension plan documents, or other authoritative sources.
- c. Please provide the forecasted pension contributions (dates and amounts) related to calendar year 2005 as determined by minimum required (ERISA) or maximum tax deductible (IRC) contributions (or any amount in between) for each noted period.

HECO Response:

- a. Actual pension contribution payments in 2003 and 2004 were as follows:

6/30/03	\$2,914,000
9/30/03	\$1,490,248
12/30/03	\$8,990,000
9/15/04	\$9,686,494
12/29/04	\$5,500,000

- b. Minimum funding requirements for defined benefit pension plans are set forth in Internal Revenue Code Section 412. Basically, the minimum required contribution for a plan year must be made within 8-1/2 months of the last day of that plan year (by September 15 of the following year for a calendar plan year). In addition, minimum contribution amounts are due on a quarterly basis: April 15, July 15, October 15, and January 15 (following year) for a calendar plan year.
- c. Currently, there are no pension contributions forecasted for the 2005 calendar year.

However, as noted in response to CA-IR-339(b), funding determination will be reviewed in

the fourth quarter of 2005 after evaluating the anticipated funded status at December 31, 2005, based on the asset value and the status of interest rates at that time.

CA-IR-519

Ref: HECO-WP-1907, page 28, addressing OPEB expense payment lag:

- a. Please provide the actual OPEB contribution payment(s) made by date(s) related to 2003 and 2004 OPEB costs. In other words, provide actual OPEB contributions (dates and amounts) attributable to calendar years 2003 and 2004 OPEB funding requirements/limitations/targets.
- b. Please provide the mandatory OPEB contribution dates for any given calendar year as may be dictated/guided by the Internal Revenue Code, OPEB plan documents, or other authoritative sources.
- c. Please provide the forecasted OPEB contributions (dates and amounts) related to 2005 and 2006.

Ref: Revenue Lag Days Calculation.

Please provide the following all relating to the interaction of the revenue lag day calculation utilized in the lead lag study and the assessment of Late Payment Charges Revenues:

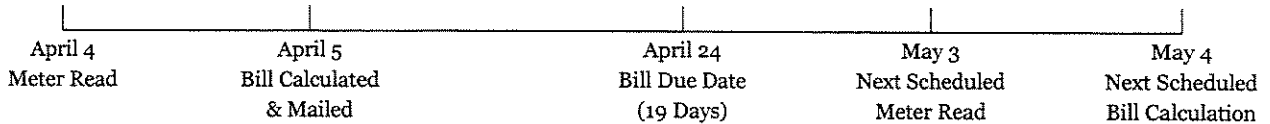
- a. Please confirm our understanding received during our interview held on February 7, 2005 with Darren Yamamoto and his staff that Late Payment Charges of 1.0% of a customer's outstanding bill is assessed whenever a customer's payment is not received within 19 days of bills being mailed. If any element of this understanding is incorrect, please correct, expand or clarify as deemed necessary or appropriate.
- b. Notwithstanding Commission approved Rules that allow assessment of a one percent (1.0%) Late Payment Charge when customer revenues are not received within 19 days following the mailing date of the utility bill, does the Company occasionally, regularly or routinely waive such Late Payment Charges? Please explain any answer given and specifically delineate the criteria or conditions for waiving the Commission authorized assessment of Late Payment Charges as applicable.
- c. Please provide accounts receivable aging reports as well as any other reports routinely generated for 2003, 2004 and 2005 to date that quantify and/or stratify the number of days and related amounts of customers' accounts receivable balances outstanding by time frames (i.e., 0 – 30 days outstanding, 31 – 60 days outstanding, 61 – 90 days outstanding, over 90 days, or other stratifications as may be routinely reported and analyzed.)
- d. In response to CA-IR-167 the Company provides historic Late Payment Charges billed in relationship to total historic revenues billed, leading to a conclusion that historically about 0.1% of total revenues are ever subjected to the 1.0% Late Payment Charge. Utilizing an accounts receivable turnover calculation, HECO calculates the *average* number of days between issuance of bill (when transaction hits the accounts receivable balance) and receipt of related revenues to be 22.5 days. Thus, the collection lag calculated utilizing the accounts receivable turnover methodology suggests that, *on average*, HECO customers pay their utility bills three and one-half days beyond the due date that triggers assessment of the one percent (1.0%) Late Payment Charge. Please provide any and all quantitative analyses or qualitative explanation that reconciles how or why so little Late Payment Charges are being assessed/collected in light of the calculated average collection lag that significantly exceeds the Late Payment Charge trigger date.

HECO Response:

- a. The following statement provided by in (a.) above is incorrect: "...Late Payment Charges of 1.0% of a customer's outstanding bill is assessed whenever a customer's payment is not

received within 19 days of bills being mailed.” The correct statement is, “Late Payment Charges of 1.0% of a customer’s outstanding account balance is assessed when the customer’s next bill is calculated.

For Example:



Assuming that the customer did not pay their bill dated April 5th, Late Payment Charges of 1.0% of the customer’s outstanding account balance would be assessed on May 4th, not April 24th (the due date).

In addition, it should be noted that HECO’s current business practice complies with Rule Number 8 (Rendering and Payment of Bills) set forth in the Tariff:

“A late payment charge of 1% shall be applied to any unpaid electric service-related account balances excluding any unpaid late payment charges existing when the bill is calculated for billing purposes, provided the billing period is not less than 20 days since the last bill.”

- b. As indicated in response (a.) above, a one percent (1.0%) Late Payment Charge is assessed when customer revenues are not received by the time the subsequent month’s bill is calculated.

In regards to these Late Payment Charges, the company occasionally waives such fees. Such conditions for waiving assessed Late Payment Charges would include the following:

1. Customer did not receive bills in a timely manner due to the fact that they moved premises and bills were sent to their previous mailing address.

2. Payments received were erroneously applied to another account.
3. Customer was out of town.
4. Customer claims they did not receive their bill.

The waiver of Late Payment Charges is generally limited to once per year for each customer. It should be noted that the Company mitigates the risk of excessive waving of Late Payment Charges with the following controls which are currently in place.

1. Through the security measures available through the current customer Information System (ACCESS), only authorized individuals are able to update or waive Late Payment Charges (via the AJRN screen).
 2. An audit trail of all Late Payment Charges waived is available through report no. REV 120-1 (Source Code 22), which is generated on a daily basis and reviewed by the Customer Accounting and Billing Section.
- c. The "Accounts Receivable Analysis" Report for January 2003 through February 2005 was developed specifically for CA-IR-520 and can be found on Page 4. This report is not created on a routine basis. The "Monthly Accounts Receivable Aging Report " for January 2003 through February 2005 can be found on Page 5 and Page 6 and is maintained on a routine basis.
- d. The following statement provided by the CA is incorrect. "...on average, HECO customers pay their utility bills three and one-half days beyond the due date that triggers assessment of the one percent (1.0%) Late Payment Charge."

As indicated in item (a.) above, the one percent (1.0%) Late Payment Charge is assessed on the customer's outstanding account balance at the time the customer's next bill is calculated. It is not triggered at the due date.



**ACCOUNTS RECEIVABLE ANALYSIS
HAWAIIAN ELECTRIC COMPANY, INC.
Outstanding Customer Accounts Receivable
Balances By Time Frame
(2003-2005 YTD)**

CA-IR-520
DOCKET NO. 04-0113
PAGE 4 OF 6

	Totals			
	A	B	C	D
	Current	30 Days	60 Days & Over	Total Customer Accounts Receivable
Jan-2003	\$ 60,122,284	\$ 3,219,654	\$ 627,488	\$ 63,969,426
Feb-2003	\$ 45,903,763	\$ 2,924,108	\$ 399,327	\$ 49,227,198
Mar-2003	\$ 48,655,188	\$ 2,641,950	\$ 587,838	\$ 51,884,976
Apr-2003	\$ 49,244,264	\$ 3,020,243	\$ 472,931	\$ 52,737,439
May-2003	\$ 52,201,550	\$ 3,021,890	\$ 483,974	\$ 55,707,414
Jun-2003	\$ 53,864,863	\$ 3,030,551	\$ 574,951	\$ 57,470,365
Jul-2003	\$ 55,228,096	\$ 3,202,526	\$ 623,032	\$ 59,053,655
Aug-2003	\$ 51,294,539	\$ 3,177,999	\$ 517,708	\$ 54,990,246
Sep-2003	\$ 52,500,478	\$ 3,057,440	\$ 719,370	\$ 56,277,287
Oct-2003	\$ 55,706,923	\$ 3,252,734	\$ 569,452	\$ 59,529,109
Nov-2003	\$ 53,661,424	\$ 3,219,166	\$ 588,261	\$ 57,468,851
Dec-2003	\$ 54,684,732	\$ 3,530,128	\$ 699,513	\$ 58,914,373
Jan-2004	\$ 53,742,281	\$ 3,072,825	\$ 525,765	\$ 57,340,871
Feb-2004	\$ 53,666,712	\$ 3,494,213	\$ 421,686	\$ 57,582,611
Mar-2004	\$ 50,804,509	\$ 3,062,146	\$ 498,525	\$ 54,365,180
Apr-2004	\$ 48,243,008	\$ 2,741,197	\$ 412,785	\$ 51,396,991
May-2004	\$ 47,033,070	\$ 2,977,191	\$ 396,878	\$ 50,407,140
Jun-2004	\$ 54,776,764	\$ 2,979,545	\$ 609,103	\$ 58,365,411
Jul-2004	\$ 56,921,134	\$ 3,514,125	\$ 606,544	\$ 61,041,803
Aug-2004	\$ 54,325,636	\$ 3,445,596	\$ 715,348	\$ 58,486,579
Sep-2004	\$ 63,748,285	\$ 3,450,291	\$ 823,516	\$ 68,022,092
Oct-2004	\$ 63,616,430	\$ 3,876,874	\$ 631,522	\$ 68,124,827
Nov-2004	\$ 64,322,915	\$ 3,748,152	\$ 782,398	\$ 68,853,465
Dec-2004	\$ 57,457,242	\$ 4,139,622	\$ 803,681	\$ 62,400,545
Jan-2005	\$ 65,709,699	\$ 3,233,810	\$ 869,273	\$ 69,812,782
Feb-2005	\$ 51,207,226	\$ 3,676,033	\$ 535,876	\$ 55,419,135
SOURCE	Formula Col. D - Col. B - Col. C	"Monthly Accounts Receivable Aging Report" (Exhibit 2)		"ACCESS - Cycle Control" (Rpt. No. CSH217-01)

Note: The current Customer Information System (ACCESS) only stratifies receivables by 31 – 60 days and Over 60 days.

HAWAIIAN ELECTRIC COMPANY, INC.
Customer Service Dept.

Monthly Accounts Receivable Aging Report

[illegible]

CA-IR-520
DOCKET NO. 04-0113
PAGE 5 OF 6

ESS Report - Monthly Accounts Aging & Delinquency Report CSF02201



HAWAIIAN ELECTRIC COMPANY, INC.
Customer Service Dept.

Monthly Accounts Receivable Aging Report

	Residential						Commercial						Total	
	30 Days		60 Days & Over		Subtotal		30 Days		60 Days & Over		Subtotal			
	Amount	No.	Amount	No.	30 Day & Over \$	No.	Amount	No.	30 Day & Over \$	No.	30 Day & Over \$	No.		
Jan-04	\$ 1,979,950	20,462	\$ 395,183	5,253	\$ 2,375,132	25,715	\$ 1,092,875	2,399	\$ 130,582	380	\$ 1,223,457	2,779	\$ 3,598,590	28,494
Feb-04	\$ 1,965,086	19,678	\$ 280,592	4,138	\$ 2,245,678	23,816	\$ 1,529,128	1,938	\$ 141,093	382	\$ 1,670,221	2,320	\$ 3,915,899	26,136
Mar-04	\$ 1,798,995	18,553	\$ 381,009	5,102	\$ 2,180,004	23,655	\$ 1,263,151	2,235	\$ 117,516	353	\$ 1,380,667	2,588	\$ 3,560,671	26,243
Apr-04	\$ 1,784,801	18,970	\$ 299,677	4,459	\$ 2,084,479	23,429	\$ 956,396	2,201	\$ 113,108	317	\$ 1,069,504	2,518	\$ 3,153,983	25,947
May-04	\$ 1,978,037	20,290	\$ 289,745	4,386	\$ 2,267,781	24,676	\$ 999,155	2,199	\$ 107,134	337	\$ 1,106,288	2,536	\$ 3,374,070	27,212
Jun-04	\$ 1,825,657	19,225	\$ 460,029	5,842	\$ 2,285,686	25,067	\$ 1,153,887	2,195	\$ 149,074	383	\$ 1,302,961	2,578	\$ 3,588,647	27,645
Jul-04	\$ 2,043,763	19,987	\$ 480,367	5,779	\$ 2,524,130	25,766	\$ 1,470,362	2,221	\$ 126,177	323	\$ 1,596,539	2,544	\$ 4,120,669	28,310
Aug-04	\$ 2,223,241	20,988	\$ 546,107	5,875	\$ 2,769,348	26,863	\$ 1,222,355	2,255	\$ 169,240	427	\$ 1,391,595	2,682	\$ 4,160,944	29,545
Sep-04	\$ 1,902,131	18,339	\$ 665,177	7,604	\$ 2,567,308	25,943	\$ 1,548,160	2,124	\$ 158,339	479	\$ 1,706,499	2,603	\$ 4,273,807	28,546
Oct-04	\$ 2,441,981	21,804	\$ 430,793	5,294	\$ 2,872,773	27,098	\$ 1,434,894	2,256	\$ 200,729	346	\$ 1,635,623	2,602	\$ 4,508,396	29,700
Nov-04	\$ 2,306,644	20,651	\$ 561,917	6,231	\$ 2,868,561	26,882	\$ 1,441,508	2,351	\$ 220,481	463	\$ 1,661,988	2,814	\$ 4,530,549	29,696
Dec-04	\$ 2,367,367	20,739	\$ 587,427	6,283	\$ 2,954,794	27,022	\$ 1,772,255	2,433	\$ 216,254	414	\$ 1,988,509	2,847	\$ 4,943,303	29,869
Jan-05	\$ 1,909,672	17,802	\$ 644,954	6,298	\$ 2,554,626	24,100	\$ 1,324,138	2,196	\$ 224,319	406	\$ 1,548,457	2,602	\$ 4,103,083	26,702
Feb-05	\$ 2,210,446	19,959	\$ 322,755	4,065	\$ 2,533,201	24,024	\$ 1,465,587	2,048	\$ 213,121	312	\$ 1,678,708	2,360	\$ 4,211,909	26,384

Source: ACCESS Report - Monthly Accounts Aging & Delinquency Report CSF02201

CA-IR-521

Ref: Response to CA-IR-93 regarding 2004 Actual Plant Additions.

The noted response indicates that Item No. P0000886 (Wal-Mart Sam's Keeaumoku) came on line considerably under the original 2004 budget amount. Please provide the following regarding Item No. P0000886:

- a. State whether the entire project has been completed.
- b. If the entire project has not been completed, please describe the remaining phases, state the estimated cost for each remaining phase, and state the currently estimated in service date for

each remaining phase.

- c. As applicable, state the criteria for determining when each phase is considered in-service.
- d. If the entire project has been completed, please briefly explain why the project came in significantly under budget.

HECO Response:

- a. The last phase of the project is not yet complete.
- b. Completion of the remaining phase, HMSA Keeaumoku Conversion, has been delayed to July 2006 at the customer's request. The estimated cost of this phase is \$84,000 while the estimated cost for the entire project is \$1,804,000, which includes approximately \$557,000 of an in-kind contribution estimated to be recorded in 2005.
- c. Generally, projects are deemed to be in service based on the guidelines provided in "Accounting for Capital Project Costs" which was provided as Exhibit HECO-1318 (see pages 2-3).
- d. Not applicable.

CA-IR-522

Ref: Response to CA-IR-93 regarding 2004 Actual Plant Additions.

The noted response indicates that Item No. Y00027 (Mokuone Substation) came on line considerably under the original 2004 budget amount. Please provide the following regarding

Item No. Y00027:

- a. State whether the entire project has been completed.
- b. If the entire project has not been completed, please describe the remaining phases, state the estimated cost for each remaining phase, and state the currently-estimated in service date for each remaining phase.
- c. As applicable, state the criteria for determining when each phase is considered in-service.
- d. If the entire project has been completed, please briefly explain why the project came in significantly under budget.

HECO Response:

- a. The project was completed March 17, 2005. The substation was energized in December 2004 with only one (Mauka) 46kV line. The second (Makai) 46kV line cannot be completed until the City repairs (expected in June 2005) the damaged Hart Street sewer main which crosses the 46kV duct line. As of the end of March 2005, the remaining 46kV

CA-IR-523

Ref: HECO-1902 and the Company's response to CA-IR-96 addressing changes in plant/ depreciation reserve balances.

It is the CA's understanding that depreciation expense accrued in any given year is based upon beginning-of-calendar-year gross plant in service balances multiplied times authorized depreciation rates. Please confirm such assumption, and if correct, explain why the "actual" depreciation expense accrual for 2004 turned out to be slightly different than the 2004 estimate as provided in response to CA-IR-96.

HECO Response:

The depreciation expense accrued in any given year is based upon beginning-of-calendar-year gross plant in service balances multiplied by the authorized depreciation rates.

The actual depreciation accrual for 2004 of \$78,315,000 provided in response to CA-IR-96 differs from the 2004 depreciation accrual of \$77,571,000 presented in HECO-1902 primarily due to the following:

- HECO-1902 was prepared in July 2004.
- New depreciation rates became effective on September 3, 2004, per Decision and Order No. 21331, Docket No. 02-0391. The depreciation accrual presented in HECO-1902 assumed that the new depreciation rates would become effective on August 1, 2004.
- In December 2004, the Company made an adjustment to depreciation expense for work orders (related to programs i.e. numerous, repetitive, low cost projects) that had not been closed in a timely manner.

CA-IR-524

Ref: HECO-WP-1907 (Fuel payment lag development).

~~Please provide any updated fuel payment lags that have resulted from renegotiated C...~~

Tesoro contracts recently entered into that became/will become effective in 2005.

HECO Response:

Attached on pages 2 to 5 of this response is a revised fuel payment lag calculation adjusted to

Fuel Payment Lag

S:_Company\RegulatoryAffairs\HECOTY2005RateCase\Responses to CA-IRs\14th Submission IR-501 to IR-533\CA-IR-524\CA-IR_524 Exhibit.xls\Summary

Per Supporting Worksheets.

Fuel Payment Lag	16 days
------------------	---------

Note A: Payments for test year per Generation Planning Division.

Tesoro paid by wire transfer. No check clearing lag.

Hawaiian Electric Company, Inc.
Working Cash Study
Fuel Payment Lag

File: S:_Company\Regulatory Affairs\HECOTY2005RateCase\Responses to CA-IRs\14th Submission IR-501 to IR-533\CA-IR-524\CA-IR_524 Exhibit.xls\Tesoro
Source: Jan-Mar 2005 actuals per invoices & wire approval records from Treasury Division.
2005 Fest fuel deliveries per Fuels Division and payment terms per contract.
Forecast assumes invoice received 5 business days after delivery, and payment due
9 calendar days after invoice.

CHEVRON

SERVICE PERIOD (Delivery
dates)

CHEVRON	BEGIN	END	AVE SERVICE PERIOD (DAYS)	INVOICE DATE	END DATE TO INVOICE DATE (DAYS)	PAYMENT DATE	INVOICE DATE TO PAY DATE (DAYS)	PAYMENT LAG (DAYS)
Jan '05 Actuals	1/10/05	1/10/05	0.5	1/20/05	10.0	1/31/05	10.5	21.0
	1/10/05	1/10/05	0.5	1/20/05	10.0	1/31/05	10.5	21.0
	1/10/05	1/10/05	0.5	1/20/05	10.0	1/31/05	10.5	21.0
	1/10/05	1/10/05	0.5	1/20/05	10.0	1/31/05	10.5	21.0
	1/20/05	1/20/05	0.5	1/26/05	6.0	2/10/05	14.5	21.0
	1/20/05	1/20/05	0.5	1/26/05	6.0	2/10/05	14.5	21.0
	1/17/05	1/17/05	0.5	1/26/05	9.0	2/10/05	14.5	24.0
	1/26/05	1/26/05	0.5	2/1/05	6.0	2/22/05	20.5	27.0
	1/26/05	1/26/05	0.5	2/1/05	6.0	2/22/05	20.5	27.0
	1/26/05	1/26/05	0.5	2/1/05	6.0	2/22/05	20.5	27.0
Feb '05 Actuals	2/9/05	2/9/05	0.5	2/9/05	0.0	2/22/05	12.5	13.0
	2/9/05	2/9/05	0.5	2/9/05	0.0	2/22/05	12.5	13.0
	2/9/05	2/9/05	0.5	2/9/05	0.0	2/22/05	12.5	13.0
	2/9/05	2/9/05	0.5	2/9/05	0.0	2/22/05	12.5	13.0
	2/9/05	2/9/05	0.5	2/9/05	0.0	2/22/05	12.5	13.0
	2/8/05	2/8/05	0.5	2/8/05	0.0	2/22/05	13.5	14.0
	2/8/05	2/8/05	0.5	2/8/05	0.0	2/22/05	13.5	14.0
	2/8/05	2/8/05	0.5	2/8/05	0.0	2/22/05	13.5	14.0
	2/9/05	2/9/05	0.5	2/17/05	8.0	2/28/05	10.5	19.0
	2/14/05	2/14/05	0.5	2/28/05	14.0	3/10/05	9.5	24.0
	2/14/05	2/14/05	0.5	2/28/05	14.0	3/10/05	9.5	24.0
	2/14/05	2/14/05	0.5	2/28/05	14.0	3/10/05	9.5	24.0
	2/26/05	2/26/05	0.5	3/5/05	7.0	3/21/05	15.5	23.0
	2/26/05	2/26/05	0.5	3/1/05	3.0	3/21/05	19.5	23.0
Mar '05 Actuals	2/26/05	2/26/05	0.5	3/1/05	3.0	3/21/05	19.5	23.0
	3/8/05	3/8/05	0.5	3/10/05	2.0	3/21/05	10.5	13.0
Apr '05 Fest	3/17/05	3/17/05	0.5	3/18/05	1.0	3/31/05	12.5	14.0
	4/6/05	4/6/05	0.5	4/13/05	7.0	4/22/05	8.5	16.0
	4/12/05	4/12/05	0.5	4/19/05	7.0	4/28/05	8.5	16.0
	4/18/05	4/18/05	0.5	4/25/05	7.0	5/4/05	8.5	16.0
	4/24/05	4/24/05	0.5	4/29/05	5.0	5/9/05	9.5	15.0
May '05 Fest	4/30/05	4/30/05	0.5	5/6/05	6.0	5/16/05	9.5	16.0
	5/6/05	5/6/05	0.5	5/13/05	7.0	5/23/05	9.5	17.0
	5/12/05	5/12/05	0.5	5/19/05	7.0	5/27/05	7.5	15.0
	5/18/05	5/18/05	0.5	5/25/05	7.0	6/3/05	8.5	16.0
	5/24/05	5/24/05	0.5	6/1/05	8.0	6/13/05	11.5	20.0
	5/30/05	5/30/05	0.5	6/6/05	7.0	6/15/05	8.5	16.0

CHEVRON (cont.)

SERVICE PERIOD (Delivery dates)

CHEVRON	BEGIN	END	AVE SERVICE PERIOD (DAYS)	INVOICE DATE	END DATE TO INVOICE DATE (DAYS)	PAYMENT DATE	INVOICE DATE TO PAY DATE (DAYS)	PAYMENT LAG (DAYS)
Jun '05 Fcst	6/6/05	6/6/05	0.5	6/14/05	8.0	6/23/05	8.5	17.0
	6/12/05	6/12/05	0.5	6/17/05	5.0	6/27/05	9.5	15.0
	6/18/05	6/18/05	0.5	6/24/05	6.0	7/5/05	10.5	17.0
	6/24/05	6/24/05	0.5	7/1/05	7.0	7/11/05	9.5	17.0
	6/30/05	6/30/05	0.5	7/8/05	8.0	7/18/05	9.5	18.0
Jul '05 Fcst	7/6/05	7/6/05	0.5	7/13/05	7.0	7/22/05	8.5	16.0
	7/12/05	7/12/05	0.5	7/19/05	7.0	7/28/05	8.5	16.0
	7/18/05	7/18/05	0.5	7/25/05	7.0	8/3/05	8.5	16.0
	7/24/05	7/24/05	0.5	7/29/05	5.0	8/8/05	9.5	15.0
	7/30/05	7/30/05	0.5	8/5/05	6.0	8/15/05	9.5	16.0
Aug '05 Fcst	8/6/05	8/6/05	0.5	8/12/05	6.0	8/22/05	9.5	16.0
	8/12/05	8/12/05	0.5	8/22/05	10.0	8/31/05	8.5	19.0
	8/18/05	8/18/05	0.5	8/26/05	8.0	9/6/05	10.5	19.0
	8/24/05	8/24/05	0.5	8/31/05	7.0	9/9/05	8.5	16.0
	8/30/05	8/30/05	0.5	9/7/05	8.0	9/16/05	8.5	17.0
Sep '05 Fcst	9/6/05	9/6/05	0.5	9/13/05	7.0	9/22/05	8.5	16.0
	9/12/05	9/12/05	0.5	9/19/05	7.0	9/28/05	8.5	16.0
	9/18/05	9/18/05	0.5	9/23/05	5.0	10/3/05	9.5	15.0
	9/24/05	9/24/05	0.5	9/30/05	6.0	10/11/05	10.5	17.0
	9/30/05	9/30/05	0.5	10/7/05	7.0	10/17/05	9.5	17.0
Oct '05 Fcst	10/6/05	10/6/05	0.5	10/14/05	8.0	10/24/05	9.5	18.0
	10/12/05	10/12/05	0.5	10/19/05	7.0	10/28/05	8.5	16.0
	10/18/05	10/18/05	0.5	10/25/05	7.0	11/3/05	8.5	16.0
	10/24/05	10/24/05	0.5	10/31/05	7.0	11/9/05	8.5	16.0
	10/30/05	10/30/05	0.5	11/4/05	5.0	11/14/05	9.5	15.0
Nov '05 Fcst	11/6/05	11/6/05	0.5	11/14/05	8.0	11/23/05	8.5	17.0
	11/12/05	11/12/05	0.5	11/18/05	6.0	11/28/05	9.5	16.0
	11/18/05	11/18/05	0.5	11/28/05	10.0	12/7/05	8.5	19.0
	11/24/05	11/24/05	0.5	12/1/05	7.0	12/9/05	7.5	15.0
	11/30/05	11/30/05	0.5	12/7/05	7.0	12/16/05	8.5	16.0
Dec '05 Fcst	12/6/05	12/6/05	0.5	12/13/05	7.0	12/22/05	8.5	16.0
	12/12/05	12/12/05	0.5	12/19/05	7.0	12/28/05	8.5	16.0
	12/18/05	12/18/05	0.5	12/23/05	5.0	1/3/06	10.5	16.0
	12/24/05	12/24/05	0.5	1/3/06	10.0	1/12/06	8.5	19.0
	12/30/05	12/30/05	0.5	1/9/06	10.0	1/18/06	8.5	19.0

CHEVRON Payment Lag based on 2005 actual payments till 3/31/05, and Apr-Dec forecast

17.6

TESORO

Jan-Mar 2005 actuals per invoices & wire approval records from Treasury Division.

2005 Fcst fuel deliveries per Fuels Division and payment terms per contract.

Payment is due 7 business days from the date of the invoice.

Generally invoicing is 1-2 days after date of delivery. Forecast assumes invoice received next business day.

SERVICE PERIOD (Delivery Dates)

TESORO	BEGIN	END	AVE SERVICE PERIOD (DAYS)	INVOICE DATE	END DATE TO INVOICE DATE (DAYS)	PAYMENT DATE	INVOICE DATE TO PAY DATE (DAYS)	PAYMENT LAG (DAYS)
Jan '05 Actual	1/15/05	1/15/05	0.5	1/18/05	3.0	1/27/05	8.5	12.0
	1/22/05	1/22/05	0.5	1/27/05	5.0	2/17/05	20.5	26.0
	1/22/05	1/22/05	0.5	1/27/05	5.0	2/17/05	20.5	26.0
Feb '05 Actual	2/10/05	2/10/05	0.5	2/10/05	0.0	2/22/05	11.5	12.0
	2/20/05	2/20/05	0.5	2/28/05	8.0	3/9/05	8.5	17.0
	2/20/05	2/20/05	0.5	2/28/05	8.0	3/9/05	8.5	17.0
Mar '05 Actual	3/2/05	3/2/05	0.5	3/4/05	2.0	3/15/05	10.5	13.0
	3/17/05	3/17/05	0.5	3/22/05	5.0	3/31/05	8.5	14.0
	3/17/05	3/17/05	0.5	3/22/05	5.0	3/31/05	8.5	14.0
Apr '05 Fcst	4/5/05	4/5/05	0.5	4/6/05	1.0	4/15/05	8.5	10.0
	4/15/05	4/15/05	0.5	4/18/05	3.0	4/27/05	8.5	12.0
	4/25/05	4/25/05	0.5	4/26/05	1.0	5/5/05	8.5	10.0
May '05 Fcst	5/5/05	5/5/05	0.5	5/6/05	1.0	5/17/05	10.5	12.0
	5/15/05	5/15/05	0.5	5/16/05	1.0	5/25/05	8.5	10.0
	5/25/05	5/25/05	0.5	5/26/05	1.0	6/7/05	11.5	13.0
Jun '05 Fcst	6/5/05	6/5/05	0.5	6/6/05	1.0	6/16/05	9.5	11.0
	6/15/05	6/15/05	0.5	6/16/05	1.0	6/27/05	10.5	12.0
	6/25/05	6/25/05	0.5	6/27/05	2.0	7/7/05	9.5	12.0
Jul '05 Fcst	7/5/05	7/5/05	0.5	7/6/05	1.0	7/15/05	8.5	10.0
	7/15/05	7/15/05	0.5	7/18/05	3.0	7/27/05	8.5	12.0
	7/25/05	7/25/05	0.5	7/26/05	1.0	8/4/05	8.5	10.0
Aug '05 Fcst	8/5/05	8/5/05	0.5	8/8/05	3.0	8/17/05	8.5	12.0
	8/15/05	8/15/05	0.5	8/16/05	1.0	8/26/05	9.5	11.0
	8/25/05	8/25/05	0.5	8/26/05	1.0	9/7/05	11.5	13.0
Sep '05 Fcst	9/5/05	9/5/05	0.5	9/6/05	1.0	9/15/05	8.5	10.0
	9/15/05	9/15/05	0.5	9/16/05	1.0	9/27/05	10.5	12.0
	9/25/05	9/25/05	0.5	9/26/05	1.0	10/5/05	8.5	10.0
Oct '05 Fcst	10/5/05	10/5/05	0.5	10/6/05	1.0	10/18/05	11.5	13.0
	10/15/05	10/15/05	0.5	10/17/05	2.0	10/26/05	8.5	11.0
	10/25/05	10/25/05	0.5	10/26/05	1.0	11/4/05	8.5	10.0
Nov '05 Fcst	11/5/05	11/5/05	0.5	11/7/05	2.0	11/17/05	9.5	12.0
	11/15/05	11/15/05	0.5	11/16/05	1.0	11/28/05	11.5	13.0
	11/25/05	11/25/05	0.5	11/28/05	3.0	12/7/05	8.5	12.0
Dec '05 Fcst	12/5/05	12/5/05	0.5	12/6/05	1.0	12/15/05	8.5	10.0
	12/15/05	12/15/05	0.5	12/16/05	1.0	12/28/05	11.5	13.0
	12/25/05	12/25/05	0.5	12/27/05	2.0	1/6/06	9.5	12.0

TESORO Payment Lag based on 2005 actual payments till 3/31/05, and Apr-Dec forecast

12.7

CA-IR-525

Ref: Company's response to CA-IR-216.

- a. Is each "Prepayment" account shown therein related exclusively to HECO's provision of electric service?
- b. If no, please provide the following:
 1. State each entity/business unit (i.e., parent, subsidiary, unregulated business venture, etc.) to which the prepayment also relates.
 2. State the basis for allocating/assigning the expense distribution of the prepayment balance between HECO electric service and other benefiting entities/business units.
 3. Provide the actual expense distribution from the prepayment account between entities/business units for calendar year 2004.

HECO Response:

- a. The prepayment accounts listed in response to CA-IR-216 relate exclusively to HECO's provision of electric service, except for the Prepaid rent account. The Prepaid rent account includes a portion of the King St. property rent that HECO bills to HEI. It should also be noted that consistent with prior PUC rulings (D&O No. 14412 in Docket No. 7766, D&O No. 11317 in Docket No. 6531, and D&O No. 10993 in Docket No. 6432), the cost of Prepaid Keyman Insurance, which funds death benefits for the families of the company's executives covered by the policies, is not included in revenue requirements for ratemaking purposes.
- b. For the Prepaid rent account:
 1. The prepayment includes a portion of the King St. property rent that relates to HEI, the parent company.
 2. HECO bills HEI their portion of the King St. property rent based on an allocation of the total rent (\$/square footage) for the office space that HEI occupies, including HEI's

portion of common areas.

3. The amount charged to HEI for base rent on the King St. property in 2004 was \$10,238 per month. Of the \$67,274 monthly rent expense that flowed through the prepaid rent account in 2004, \$10,238 relates to HEI's portion of the King St. property base rent.

CA-IR-526

Ref: Company's response to CA-IR-215.

- a. Is each "Reserve" account shown therein related exclusively to HECO's provision of electric service?
- b. If no, please provide the following:
 - 1. State each entity/business unit (i.e., parent, subsidiary, unregulated business venture, etc.) for which the reserve account also applies.
 - 2. State the basis for accruing the expense provision of the reserve balance between HECO electric service and other entities/business units for which the expense is being accrued.
 - 3. Provide the actual expense accrual for each reserve account by entity/business unit for calendar year 2004.

HECO Response:

- a. Yes.
- b. Not applicable.

CA-IR-527

Ref: HECO Response to CA-IR-34, Attachment 1, Cycling Unit Service Hours.

According to the Attachment, cycling service hours were much higher in the late 1980's and other years prior to 1992, when the IPP capacity purchases were added to system resources, and have recently grown with demand to comparable levels in 2004. Please provide the following information:

- a. Please append to the Attachment 1 table and graphs cycling unit service hours associated with each of the Company's units based upon the HECO generation dispatch simulation for the test period, as well as the combined "total" hours, if available.
- b. Explain whether the cycling units were staffed for 16 hours per day, 5 days per week or for 24X7 operations in the late 1980's and in 1990-1992, so as to accommodate the service hour demands at that time.
- c. If 24X7 staffing was not needed in the late 1980's and in 1990-1992, please explain why such staffing is now thought to be needed due to higher demand levels.
- d. Please describe the generating unit operations staffing complement, in terms of number of approximate numbers of personnel, for each generating station throughout each year of the time frame of this table and graph.
- e. Please provide the approximate level of overtime hours incurred for production operations for each generating station throughout as many prior years of the time frame of this table and graph as are available.

HECO Response:

- a. The estimated operating hours for each of the cycling units, based upon the HECO generation dispatch simulation for the test year 2005, is as follows:

H8	1,587
H9	3,436
W3	796
W4	1,875
W5	4,403
W6	5,177

Total 14,274

The CA-IR-34 Attachment 1 table and graph have been appended are attached as page 4 and 5 of this response.

Please note that the production simulation, which is used to forecast fuel oil consumption, not unit run hours, may under "predict" cycling and peaking unit run hours based on the program's probabilistic treatment of EFORs (as de-ratings, not random outages). The fuel oil consumption is estimated by the production simulation use of economic dispatch to match the generation with the system demand, and the fuel oil consumption is "fine tuned" by the calibration factor to reflect actual/historical system heat rate. The intent of the production simulation is to accurately forecast the fuel oil consumption for the whole system and is not intended to accurately forecast each individual unit's fuel oil consumption.

- b. Waiau Units 3 through 6 and Honolulu Units 8 & 9 were staffed for 24x7 operation in the late 1980's and in 1990-1992 until operation was curtailed after AES went into commercial operation in 1992. At that time HECO decided to use attrition through employee retirement to gradually reduce the staffing level to support 16x5 operation. Waiau 3 & 4 converted to 16 hour per day and 5 days per week operation on April 5, 1993. Honolulu 8 & 9 started 16 hour per day and 5 days per week operation on June 1, 1998. The Honolulu Shift Supervisors and Utility Operators, however, remained on 24X7 staffing to monitor the station and equipment. Waiau 5 & 6 remained on 24X7 operation. As system demand increased in the last 3 years, operation of W3&4 and H8&9 increased to the point where the transition back to 24X7 coverage was necessary to provide safe, compliant and reliable service.

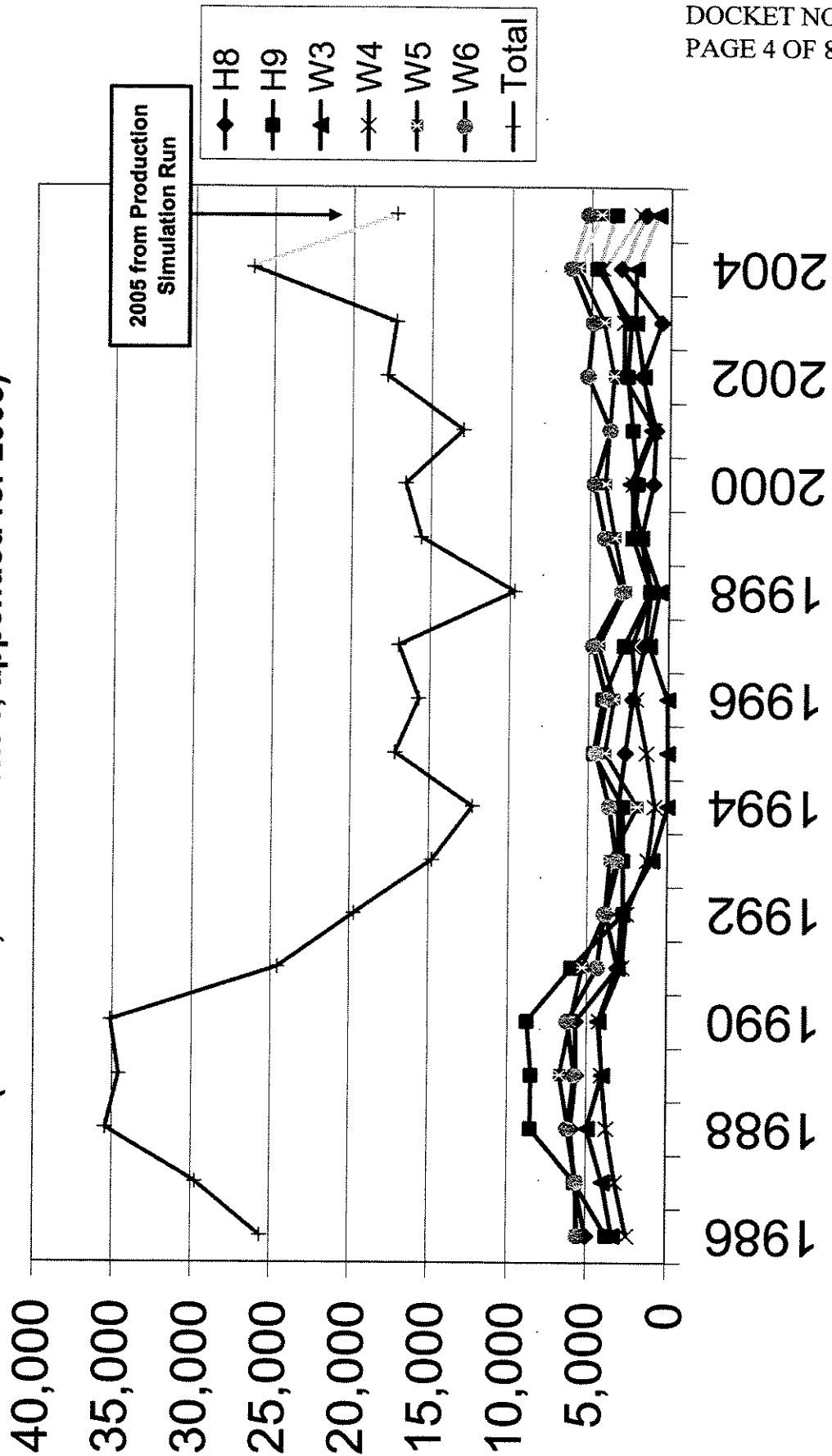
- c. As shown in the graph of Cycling Unit Service Hours on page 5 of this response, cycling unit operation was high in the late 1980's through 1992. This level of operation required 24x7 staffing coverage. In the last three years, operation of H8&9 and W3&4 has increased significantly due to higher system demand. This trend is expected to increase into the foreseeable future, requiring the return to 24X7 operation.
- d. The Operating Division staffing level for the shift workers at each generating station from 1986 to 2004 is shown on page 6 of this response. These totals include the Shift Supervisors and all Operators.
- e. HECO-620 reflected overtime for Operations for the years 2001, 2002, and 2003 for each powerplant. The data reported in HECO-620 is in error and has been corrected. The revised data is attached in page 7 of this response. Operations overtime hours and percentages for 2002 through 2004 are also shown in the revised CA-IR-172 provided as CA-IR-635, page 7.

Overtime labor hours is available is for the Operating Division for the Honolulu

Waiau, and Kahe powerplants from 1990 to 2004. The data is provided in page 8 of this response for the latest pay periods for which data was available..

Cycling Unit Service Hours

(CA-IR-34, Attachment 1, appended for 2005)



Cycling Unit Service Hours

(1986-2004 data extracted from GENSTATS [CA-IR-28, Attachment 2];
2005 data from Production Simulation Run)

	H8	H9	W3	W4	W5	W6	Total	
1986	4983	3703	3334	2439	5589	5528	25576	
1987	5673	5696	3966	3176	5581	5624	29716	
1988	5956	8505	4952	3737	6102	6165	35417	
1989	5651	8471	4016	4037	6665	5746	34586	
1990	5695	8750	4262	4196	6013	6207	35123	
1991	3066	5962	3082	2813	5273	4347	24543	
1992	3841	2741	2806	2526	3872	3921	19707	
1993	3043	2767	964	1248	3600	3166	14788	
1994	3092	2802	0	805	1888	3673	12260	
1995	2671	4662	10	1349	3944	4525	17161	
1996	2223	4104	43	2018	3408	3885	15681	
1997	1514	2793	1223	2290	4388	4752	16960	
1998	1148	1161	605	1106	2733	2938	9691	
1999	1769	2283	1786	2309	3428	4047	15622	
2000	1030	2027	2466	2301	4049	4734	16607	
2001	895	2362	1170	1009	3794	3773	13003	
2002	1759	2693	1693	2914	3556	5175	17790	
2003	564	2486	2205	2923	4206	4855	17239	
2004	3114	4634	2199	4309	5817	6255	26328	
2005	1569	3436	796	1875	4403	5177	17255	2005 from Prod Sim Run
thru 08/12/04	1612	2647	1743	2689	3523	3380	15594	
"2004 Extrapolated" = (08/12 data) divided by 0.7								
	2303	3781	2490	3841	5033	4829	22277	

**Hawaiian Electric Company, Inc.
Operations & Maintenance Department
Operating Division Staffing 1986-2004
(Shift Workers Only)**

	<u>Honolulu</u>	<u>Waiau</u>	<u>Kahe</u>	<u>Total</u>
1986	25	53	61	139
1987	27	55	60	142
1988	25	56	61	142
1989	24	59	58	141
1990	24	58	58	140
1991	23	58	60	141
1992	21	59	58	138
1993	23	53	57	133
1994	22	50	56	128
1995	23	52	56	131
1996	22	51	56	129
1997	24	53	56	133
1998	19	49	55	123
1999	17	48	54	119
2000	17	50	51	118
2001	16	49	57	122
2002	16	51	57	124
2003	16	51	53	120
2004	18	62	57	137

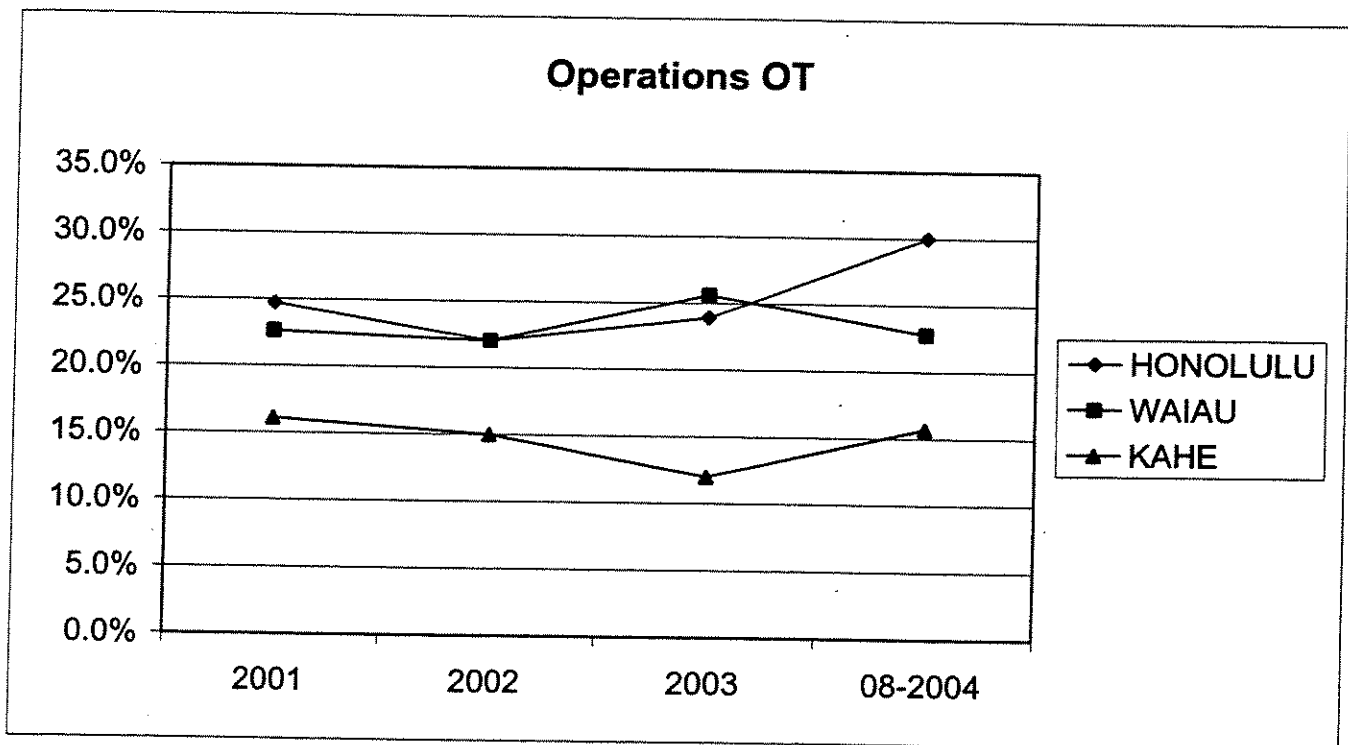
REVISED

~~HECO-620 REVISED
DOCKET NO. 04-0113
PAGE 1 OF 1~~

Hawaiian Electric Company, Inc.
2005 TEST YEAR

**OTHER PRODUCTION
OPERATIONS - LABOR OVERTIME COMPARISON**

	2001	2002	2003	08-2004
HONOLULU	24.7%	22.0%	23.9%	30.0%
WAI AU	22.6%	22.0%	25.6%	22.8%
KAHE	16.1%	15.0%	12.0%	15.7%



Hawaiian Electric Company, Inc.
Operations & Maintenance Department
Operating Division Overtime Labor Hours

	<u>Honolulu</u>	<u>Waiau</u>	<u>Kahe</u>	<u>Period Ending</u>
1990	5667.3	11040.5	9558.6	12/16/1991
1991	5872.3	10798.0	10262.8	12/15/1991
1992	5973.0	12583.4	12139.8	12/27/1992
1993	6482.5	11854.1	10342.8	12/26/1993
1994	6672.5	8625.3	11163.1	12/25/1994
1995	7384.8	10568.0	10962.6	12/24/1995
<hr/>				
1996	6125.4	13032.8	14540.6	12/22/1996
1997	6603.1	14135.1	15299.5	12/21/1997
1998	4251.0	11003.5	13883.8	12/6/1998
1999	6842.7	17183.0	16645.5	12/19/1999
2000	7116.4	26840.9	19935.9	12/31/2000
2001	7296.9	20423.2	16487.2	12/30/2001
2002	6646.3	20107.1	15851.9	12/29/2002
2003	7232.8	23641.2	12818.6	12/28/2003
2004	9488.8	22760.4	16288.1	12/26/2004

According to the "HECO" column in CA-IR-30 and in CA-IR-28, Attachment 2, page 21, the

- a. Explain why the EFOR for 2004 was stated at 4.98 percent in the letter to the Commission, which does not match the referenced IR responses.
- b. Provide reconciling calculations for the 4.98% versus 6.18% system EFOR rate.
- c. Explain the primary outage and maintenance conditions experienced at each generating unit that contributed to the deterioration in system EFOR in 2004.
- d. Were any extraordinary maintenance outage conditions experienced during 2004 that contributed to EFOR deterioration and that required unusual repair efforts or expansion of outage scope or duration at particular generating units?
- e. If your response to part d is affirmative, please identify and describe the expanded work scope that was required at each unit and explain how such work has impacted future outage schedule and work scoping plans.
- f. Describe the specific steps that have been taken by HECO to remedy each condition referenced in your response to part c.

HECO Response:

- a. The AOS Report to the Commission is a forward looking document that analyzes HECO's ability to meet the peak in the future. The 4.98% EFOR stated in the AOS Report to the Commission should have stated "The *adjusted* 2004 system average EFOR was 4.98%...". The unadjusted, historical EFOR for 2004 was 6.18% as stated in CA-IR-30 and in CA-IR-28, Attachment 2 and the AOS Report utilized the 4.98% EFOR which is the 6.18% with the Forced Outage for W9's compressor blades "normalized" out of the historical EFOR. At the

expected to affect HECO's ability to meet the peak demand in 2005. Appendix 2, page 6 of the AOS Report referred to the responses to CA-IR-28 to CA-IR-31 as the source of the EFOR date for the report.

- b. Please refer to HECO Response to CA-IR-28 Attachment 2 which calculates the EFOR for each HECO unit and for the HECO system. HECO's unadjusted EFOR for 2004 is found on the page entitled "Total Sys. (with CTs) where $EFOR = (FOR\ MWh + EFOR\ MWh) / (FOR\ MWh + Service\ Hours\ MWh) = (243,535 + 260,127) / (243,535 + 7,899,771) = 6.18\%$.

W9's forced outage, which occurred on October 11, 2004, amounted to 103,294 MWh lost in 2004 due to the compressor blade damages.

Therefore, the adjusted 2004 EFOR is $((243,535 - 103,294) + 260,127) / ((243,535 - 103,294) + 7,899,771) = 4.98\%$.

- c. Please refer to HECO Response to CA-IR-31 that explains the major reasons for EFOR fluctuations from 1999 to 2004.
- d. No.
- e. Not applicable. Please see response to part (d).

f. The following table lists the remedy for the events listed in (c).

Unit	EFOR	Description of Forced Outage			
		Start	End	Cause	Remedy
H8	23.7%	01/01/04	07/31/04	-7MW derate due to Gland Steam and Thrust Bearing	Repair gland and bearing.
		07/13/04	07/20/04	Forced outage due to #1 turbing bearing, #82 BFP discharge valve packing	(same as above)
W3	24.6%	10/10/04	12/31/04	-7 to -9MW derate due to Turbine Vacuum problem	Repair gland.
		02/24/04	03/29/04	Forced outage due to High Speed Forced Draft Fan Motor undersized	Replaced Motor.
		10/15/04	10/18/04	Forced outage due to tube leak, electric turbine trip inoperable	Repair tube leak, service turbine trip device.
W4	13.4%	08/26/04	09/10/04	Forced outage due to turbine vibration @ LP - 8 mils	Balance turbine.
		12/20/04	12/31/04	Forced outage due to H2 cooler - water in the generator	Repair H2 cooler tube leak.
W8	7.7%	05/14/04	07/31/04	-7MW derate due to turbine valve and Air Preheater	Repair turbine valve.
		11/18/04	11/21/04	Forced outage due to hot spot in gas recirculation duct	Repair refractory.
		11/22/04	12/03/04	Forced outage due to hydrogen leak/loss of seal oil system	Repair seal oil system.
W9	63.2%	10/11/04	12/31/04	Forced outage due to damaged blades - compressor	Replace compressor blades.
K3	8.8%	01/01/04	02/12/04	-6 to -9MW derate due to controls problems	APH problem rectified in 2005.
		02/12/04	12/31/04	Forced outage due to high furnace pressure	(same as above)
K5	7.6%	06/18/04	08/25/04	-22MW derate due to attemporator problems	Service attemporator valve and
		08/25/04	09/30/04	Forced outage due to boiler control tuning	refine the control set points.

CA-IR-529

Ref: HECO Response to CA-IR-28, Attachment 2.

This response indicates that for each HECO generating unit, "Available Hours" have exceeded 8,000 hours in either 2003 or 2004, approaching total "Period Hours" of 8,760. However, at page 24 of his testimony, T-6 explains the proposal to add operations staffing by stating, "The additional operators will help to reduce the overtime to more manageable and healthy levels as well as increase the respective unit availabilities from 16x5 to 24x7." Please provide the

- a. Explain why generating units are being reported as available on a nearly 24x7 basis in the past two years, if additional staffing is only now being added to achieve such around the clock availability.
- b. State with specificity how nearly full time availability has been achieved historically, when increased staffing for 24X7 operation is required to achieve such availability.
- c. Provide straight time, overtime and other labor statistics associated with your response to part b.

HECO Response:

- a. Unit availability is not the same as service hours. Available hours represents the total hours

- b. Please refer to a. above.
- c. Please refer to HECO-620 and HECO's response to CA-IR-172, pages 4 and 5, filed with the CA and the DOD on April 15, 2005, for RA's PIW (Waiau) and PIH (Honolulu).

CA-IR-530

Ref: HECO Embedded Cost of Service Model, sheet HLADATA.

According to footnote 2, "LF for Schedules R, G, H, and F are based on HECO 2003 Class Load Study. Schedules J, PS, PP, and PT are based on Rpt 212 rate runs." Please describe the basis and time period(s) used to prepare the Rpt 212 rate runs and provide copies of the summary pages for same, indicating the input load factor values used by HECO.

HECO Response:

The Report 212 is based on the recorded billing loads for the individual customers for CY 2003.

The 1st and last pages of the report for Schedules J, PS, PP, and PT are provided in pages 2 through 13 of this response.

RATE CODE		E J
1	2	3
4	5	6
7	8	9
10	11	12
13	14	15
16	17	18
19	20	21
22	23	24
25	26	27
28	29	30
31	32	33
34	35	36
37	38	39
40	41	42
43	44	45
46	47	48
49	50	51
52	53	54
55	56	57
58	59	60
61	62	63
64	65	66
67	68	69
70	71	72
73	74	75
76	77	78
79	80	81
82	83	84
85	86	87
88	89	90
91	92	93
94	95	96
97	98	99
100	101	102
103	104	105
106	107	108
109	110	111
112	113	114
115	116	117
118	119	120
121	122	123
124	125	126
127	128	129
130	131	132
133	134	135
136	137	138
139	140	141
142	143	144
145	146	147
148	149	150
151	152	153
154	155	156
157	158	159
160	161	162
163	164	165
166	167	168
169	170	171
172	173	174
175	176	177
178	179	180
181	182	183
184	185	186
187	188	189
190	191	192
193	194	195
196	197	198
199	200	201
202	203	204
205	206	207
208	209	210
211	212	213
214	215	216
217	218	219
220	221	222
223	224	225
226	227	228
229	230	231
232	233	234
235	236	237
238	239	240
241	242	243
244	245	246
247	248	249
250	251	252
253	254	255
256	257	258
259	260	261
262	263	264
265	266	267
268	269	270
271	272	273
274	275	276
277	278	279
280	281	282
283	284	285
286	287	288
289	290	291
292	293	294
295	296	297
298	299	300
301	302	303
304	305	306
307	308	309
310	311	312
313	314	315
316	317	318
319	320	321
322	323	324
325	326	327
328	329	330
331	332	333
334	335	336
337	338	339
340	341	342
343	344	345
346	347	348
349	350	351
352	353	354
355	356	357
358	359	360
361	362	363
364	365	366
367	3	

BILLING CYCLE

BUS/STRUCT CODE	DESCRIPTION	DATE	BY
100	100	100	100
101	101	101	101
102	102	102	102
103	103	103	103
104	104	104	104
105	105	105	105
106	106	106	106
107	107	107	107
108	108	108	108
109	109	109	109
110	110	110	110
111	111	111	111
112	112	112	112
113	113	113	113
114	114	114	114
115	115	115	115
116	116	116	116
117	117	117	117
118	118	118	118
119	119	119	119
120	120	120	120
121	121	121	121
122	122	122	122
123	123	123	123
124	124	124	124
125	125	125	125
126	126	126	126
127	127	127	127
128	128	128	128
129	129	129	129
130	130	130	130
131	131	131	131
132	132	132	132
133	133	133	133
134	134	134	134
135	135	135	135
136	136	136	136
137	137	137	137
138	138	138	138
139	139	139	139
140	140	140	140
141	141	141	141
142	142	142	142
143	143	143	143
144	144	144	144
145	145	145	145
146	146	146	146
147	147	147	147
148	148	148	148
149	149	149	149
150	150	150	150
151	151	151	151
152	152	152	152
153	153	153	153
154	154	154	154
155	155	155	155
156	156	156	156
157	157	157	157
158	158	158	158
159	159	159	159
160	160	160	160
161	161	161	161
162	162	162	162
163	163	163	163
164	164	164	164
165	165	165	165
166	166	166	166
167	167	167	167
168	168	168	168
169	169	169	169
170	170	170	170
171	171	171	171
172	172	172	172
173	173	173	173
174	174	174	174
175	175	175	175
176	176	176	176
177	177	177	177
178	178	178	178
179	179	179	179
180	180	180	180
181	181	181	181
182	182	182	182
183	183	183	183
184	184	184	184
185	185	185	185
186	186	186	186
187	187	187	187
188	188	188	188
189	189	189	189
190	190	190	190
191	191	191	191
192	192	192	192
193	193	193	193

DSCT/SURCH CODE

PHASE CODE

WH CODE

MULTI-RES CODE

SPEC STUDY CODE

IRREGULAR CODE

CUST CLASS CODE

CURR BILL TYPE

CUST MEAS & RNGE R KWH3/M000000199999999

REV MONTHS R 03010312

SWB-ACCT CODE

ACCT STATUS

BUS. CODE (3RD)

GENERALIZED BILL LISTING

212 KWH/30/KWH

REPORT : 1

HECO SCHED J, SEC CY2003

RS94R1 05/12/04

PAGE 1676

BILL NO.	ACCT NO.	BUS CODE	KWH	KW	KWH/KW	CUM KWH	CUM KW	CUM X @ Y % TOT-X	Y AS % Y/BILL	CUM RKVAH
77097	88151148076	3M2	10228	10.40	983.46	1925751612	5941632.30	99.9969	280.5362	334797443
77098	88151148076	3M2	10258	10.30	995.92	1925761870	5941642.60	99.9971	284.0905	334797443
77099	94000399001	1F2	1200	1.20	1000.00	1925763070	5941643.80	99.9971	285.2543	334797443
77100	88151148076	3M2	9530	9.30	1024.73	1925772600	5941653.10	99.9975	292.3087	334797443
77101	94000399001	1F2	1241	1.20	1034.17	1925773841	5941654.30	99.9976	295.0015	334797443
77102	94000399001	1F2	1241	1.20	1034.17	1925775082	5941655.50	99.9976	295.0015	334797443
77103	2005676002	6T2	134013	123.60	1084.25	1925909095	5941779.10	99.9983	309.2870	334854532
77104	88151148076	3M2	10345	9.20	1124.46	1925919440	5941788.30	99.9986	320.7571	334854532
77105	2005679001	4V2	129200	107.10	1206.35	1926048640	5941895.40	99.9992	344.1165	334854532
77106	88241734001	0M2	123	.10	1230.00	1926048763	5941895.50	99.9992	350.8628	334854532
77107	88158653075	9M2	5264	4.20	1253.33	1926054027	5941899.70	99.9992	357.5178	334854532
77108	95002991002	2D4	22529	15.60	1444.17	1926076556	5941915.30	99.9995	411.9557	334854532
77109	88249104076	3A2	11120	4.80	2316.67	1926087676	5941920.10	99.9998	660.8401	334854532
77110	88150790075	4M4	493	.20	2465.00	1926088169	5941920.30	99.9998	703.1519	334854532
77111	94005530001	3H2	3097	.80	3871.25	1926091266	5941921.10	100.0000	1104.2908	334854532
77112	88086900080	4M2	5670	1.30	4361.54	1926099936	5941922.40	100.0000	1244.1481	334854532

SUMMARIES ON REPORT : 1

AVERAGE	24977	77.05	350.56	4342
STD-DEV	40164	298.77	133.71	20856
COUNT	77112			

LF = 1,926,096,926 ÷ 5,941,922.4 = 324.15 used in embedded COS
 filed in direct testimony
 Dkt 04-0113

GENERALIZED BILL LISTING			212	KWH/30/KWH	HECO SCHEDULE PP3 PRI, CY2003	RS94R1	04/30/04	PAGE 1
RATE CODE	E P							
BILLING CYCLE								
BUS/STRUCT CODE								
DSCT/SURCH CODE								
PHASE CODE								
WH CODE								
MULTI-RES CODE								
SPEC STUDY CODE	E P3							
IRREGULAR CODE								
CUST CLASS CODE								
CURR BILL TYPE								
CUST MEAS & RNGE	R KWH3/M000000019999999							
REV MONTHS	R 03010312							
SWB-ACCT CODE								
ACCT STATUS								
BUS. CODE (3RD)								
Total PF Class								
	KWH	KWH						
MT3	2,026,824.606	3,922,406.0						
CTA	22,400.143	40,523.2						
Total	2,049,224.749	3,962,929.2						
		517.10						

BILL NO.	ACCT NO.	BUS CODE	KWH	KW	KWH/KW	CUM KWH	CUM KW	CUM X % Y	Y AS % Y/BILL	CUM RKVAH
1979	88006359076	5E4	614483	924.00	665.02	2013075535	3902247.20	99.9831	131.7064	249016982
1980	88241235077	9W5	1426065	2140.80	666.14	2014501600	3904388.00	99.9842	131.9282	249432918
1981	88011731075	9W5	399273	598.80	666.79	2014900873	3904986.80	99.9848	132.0569	249659196
1982	88011731075	9W5	400800	600.00	668.00	2015301673	3905586.80	99.9858	132.2966	249886340
1983	88025381075	7U3	245172	367.00	668.04	2015546845	3905953.80	99.9858	132.3045	249937849
1984	88006352076	5E4	1069091	1600.00	668.18	2016615936	3907553.80	99.9860	132.3322	250592210
1985	88011731075	9W5	402207	601.20	669.01	2017018143	3908155.00	99.9866	132.4966	250809298
1986	88006352076	5E4	618750	924.00	669.64	2017636893	3909079.00	99.9870	132.6214	251126293
1987	88011731075	9W5	401455	598.80	670.43	2018038348	3909677.80	99.9875	132.7778	251353808
1988	88006352076	5E4	603871	900.00	670.97	2018642219	3910577.80	99.9879	132.8848	251663180
1989	88158866077	082	124138	185.00	671.02	2018766357	3910762.80	99.9879	132.8947	251694292
1990	92010482002	5E4	1066909	1586.40	672.53	2019883266	3912349.20	99.9888	133.1937	252255503
1991	91001939002	9W5	442500	656.00	674.54	2020275766	3913005.20	99.9898	133.5918	252557112
1992	88011731075	9W5	403200	597.60	674.70	2020678966	3913602.80	99.9898	133.6235	252785616
1993	88011731075	9W5	405000	600.00	675.00	2021083966	3914202.80	99.9900	133.6829	253015140
1994	92010482002	5E4	1149517	1694.40	678.42	2022233483	3915897.20	99.9913	134.3602	253727547
1995	88250796075	9W5	503520	738.20	682.09	2022737003	3916635.40	99.9925	135.0871	253956957
1996	88011731075	9W5	412138	597.60	689.66	2023149141	3917233.00	99.9947	136.5863	254190526
1997	88250796075	9W5	509850	738.70	690.20	2023658991	3917971.70	99.9948	136.6933	254422821
1998	88250796075	9W5	425048	615.30	690.80	2024084039	3918587.00	99.9949	136.8121	254616479
1999	88250796075	9W5	432960	618.70	699.79	2024516999	3919205.70	99.9966	138.5925	254813741
2000	88250796075	9W5	437110	621.10	703.77	2024954109	3919826.80	99.9973	139.3808	255012894
2001	91001939002	9W5	467200	656.00	712.20	2025421309	3920482.80	99.9983	141.0503	255225757
2002	91001939002	9W5	398897	560.00	712.32	2025820206	3921042.80	99.9984	141.0741	255322686
2003	91001939002	9W5	454500	624.00	728.37	2026274706	3921686.80	99.9994	144.2528	255560647
2004	88250796075	9W5	549900	739.20	743.91	2026824606	3922406.00	100.0000	147.3305	255811189

SUMMARIES ON REPORT : 17

AVERAGE
STD-DEV
COUNT

1011389 1957.28 504.92
1105658 4667.72 89.28

2004

127650
167952

GENERALIZED BILL LISTING	212 KWH/30/KWH	HECO SCHEDULE PP4 PRI, W/SEC CY2003	RS9UR1 05/04/04	PAGE 1
RATE CODE	E P			
BILLING CYCLE				
BUS/STRUCT CODE				
DSCT/SURCH CODE				
PHASE CODE				
WH CODE				
MULTI-RES CODE				
SPEC STUDY CODE	E P4			
IRREGULAR CODE				
CUST CLASS CODE				
CURR BILL TYPE				
CUST MEAS & RNCE	R KWH3/M00000019999999			
REV MONTHS	R 03010312			
SWB-ACCT CODE				
ACCT STATUS				
BUS. CODE (3RD)				

CA-IR-530
DOCKET NO. 04-0113
PAGE 6 OF 13

D CY2003 RS94R1 05/04/04

IN KW	CUM X % TOT-X	Y AS Y/BILL	CUM RKVAH
-------	------------------	----------------	-----------

0.90	99.8042	124.1474	4795577
3.70	99.8652	126.8437	4893643
6.30	99.8669	126.9470	4991709
3.20	100.0000	139.6742	5058145

52689
36333

CA-IR-530
DOCKET NO. 04-0113
PAGE 7 OF 13

HECO SCHEDULE PS, CY2003

212 КИМ/30/КИМ

GENERALIZED BILL LISTING

RATE CODE		E P	
1	2	3	4
5	6	7	8
9	0	1	2
3	4	5	6
7	8	9	0
1	2	3	4
5	6	7	8
9	0	1	2
3	4	5	6
7	8	9	0
1	2	3	4
5	6	7	8
9	0	1	2
3	4	5	6
7	8	9	0
1	2	3	4
5	6	7	8
9	0	1	2
3	4	5	6
7	8	9	0
1	2	3	4
5	6	7	8
9	0	1	2
3	4	5	6
7	8	9	0
1	2	3	4
5	6	7	8
9	0	1	2
3	4	5	6
7	8	9	0
1	2	3	4
5	6	7	8
9	0	1	2
3	4	5	6
7	8	9	0
1	2	3	4
5	6	7	8
9	0	1	2
3	4	5	6
7	8	9	0
1	2	3	4
5	6	7	8
9	0	1	2
3	4	5	6
7	8	9	0
1	2	3	4
5	6	7	8
9	0	1	2
3	4	5	6
7	8	9	0
1	2	3	4
5	6	7	8
9	0	1	2
3	4	5	6
7	8	9	0
1	2	3	4
5	6	7	8
9	0	1	2
3	4	5	6
7	8	9	0
1	2	3	4
5	6	7	8
9	0	1	2
3	4	5	6
7	8	9	0
1	2	3	4
5	6	7	8
9	0	1	2
3	4	5	6
7	8	9	0
1	2	3	4
5	6	7	8
9	0	1	2
3	4	5	6
7	8	9	0
1	2	3	4
5	6	7	8
9	0	1	2
3	4	5	6
7	8	9	0
1	2	3	4
5	6	7	8
9	0	1	2
3	4	5	6
7	8	9	0
1	2	3	4
5	6	7	8
9	0	1	2
3	4	5	6
7	8	9	0
1	2	3	4
5	6	7	8
9	0	1	2
3	4	5	6
7	8	9	0
1	2	3	4
5	6	7	8
9	0	1	2
3	4	5	6
7	8	9	0
1	2	3	4
5	6	7	8
9	0	1	2
3	4	5	6
7	8	9	0
1	2	3	4
5	6	7	8
9	0	1	2
3	4	5	6
7	8	9	0
1	2	3	4
5	6	7	8
9	0	1	2
3	4	5	6
7	8	9	0
1	2	3	

BILLING CYCLE

BUS/STRUCT CODE

DSCY/SURCH CODE

PHASE CODE

WM CODE

MULTI-RES CODE

SPEC STUDY CODE ES

IRREGULAR CODE

CUST CLASS CODE

CURR BILL TYPE

CUST MEAS & RNGE R KWH3/M0000001999999999

REV MONTHS R 03010312

SMB-ACCT CODE

ACCT STATUS

BUS. CODE (3RD)

Hwy 102
E7

PS 666,815.667 1,354,807.4

PS5 158, 128, 217 377, 062.1

Year	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100																																																																																																																																									
Total	195	224	244	287	334	344	387	434	444	487	534	544	587	634	644	687	734	744	787	834	844	887	934	944	987	1034	1044	1087	1134	1144	1187	1234	1244	1287	1334	1344	1387	1434	1444	1487	1534	1544	1587	1634	1644	1687	1734	1744	1787	1834	1844	1887	1934	1944	1987	2034	2044	2087	2134	2144	2187	2234	2244	2287	2334	2344	2387	2434	2444	2487	2534	2544	2587	2634	2644	2687	2734	2744	2787	2834	2844	2887	2934	2944	2987	3034	3044	3087	3134	3144	3187	3234	3244	3287	3334	3344	3387	3434	3444	3487	3534	3544	3587	3634	3644	3687	3734	3744	3787	3834	3844	3887	3934	3944	3987	4034	4044	4087	4134	4144	4187	4234	4244	4287	4334	4344	4387	4434	4444	4487	4534	4544	4587	4634	4644	4687	4734	4744	4787	4834	4844	4887	4934	4944	4987	5034	5044	5087	5134	5144	5187	5234	5244	5287	5334	5344	5387	5434	5444	5487	5534	5544	5587	5634	5644	5687	5734	5744	5787	5834	5844	5887	5934	5944	5987	6034	6044	6087	6134	6144	6187	6234	6244	6287	6334	6344	6387	6434	6444	6487	6534	6544	6587	6634	6644	6687	6734	6744	6787	6834	6844	6887	6934	6944	6987	7034	7044	7087	7134	7144	7187	7234	7244	7287	7334	7344	7387	7434	7444	7487	7534	7544	7587	7634	7644	7687	7734	7744	7787	7834	7844	7887	7934	7944	7987	8034	8044	8087	8134	8144	8187	8234	8244	8287	8334	8344	8387	8434	8444	8487	8534	8544	8587	8634	8644	8687	8734	8744	8787	8834	8844	8887	8934	8944	8987	9034	9044	9087	9134	9144	9187	9234	

RS94R1 04/

Y V AS X CUM RKVAH
F-X V/BILL

321	128.5342	255727182
324	128.5483	255727182
325	128.5563	255785036
381	128.9394	255844672
386	128.9795	255934665
388	128.9916	255934665
303	129.1099	256169140
376	129.6997	256227839
115	130.0186	256716036
117	130.0407	256772534
152	130.3637	256772534
162	130.5041	256772534
166	130.5222	256963787
185	130.7488	257176383
186	130.7669	257236651
190	130.8210	257278533
109	131.1059	257337842
118	131.2443	257376289
143	131.6435	257805695
164	132.0728	258030928
174	132.2734	258258139
190	132.6505	258453181
129	133.6575	258680128
130	133.7057	258906826
162	134.7267	259012293
169	134.9975	259241846
188	135.8220	259471461
189	135.8902	259900867
192	136.3516	260133736
100	138.6545	260195141

121246
101371

CA-IR-530
DOCKET NO. 04-0113
PAGE 9 OF 13

RATE CODE **E P**

BILLING CYCLE

BUS/STRUCT CODE

DST/SURCH CODE

PHASE CODE

WH CODE

MULTI-RES CODE

SPEC STUDY CODE E \$5

IRREGULAR CODE

CUST CLASS CODE

CURR BILL TYPE

CUST MEAS & RNGE R KWH3/M000000199999999

REV MONTHS R 03010312

SWB-ACCT CODE

ACCT STATUS

BUS. CODE (3AD)

RS94R1 04/30/04

HEGO SCHEDULE PS5 SEC W/NET, CY2003

212 KWH/30/KWH

NO.	BUS CODE	KWH	KW	KWH/KW	CUM KWH	CUM KW	CUM X % TOT-X	Y AS % Y/BILL	CUM RKVAH
11076	QV2	579000	971.40	596.05	136851822	342137.50	99.7087	135.2753	30086746
19080	LQ2	370400	619.20	598.19	137222222	342756.70	99.7560	135.7610	30086746
16057	8P2	1475172	2462.00	599.18	138697394	345218.70	99.7775	135.9857	30086746
16057	8P2	1447500	2406.00	601.62	140144894	347624.70	99.8266	136.5394	30086746
19080	LQ2	382000	634.00	602.52	140526894	348258.70	99.8434	136.7437	30086746
11076	QV2	523161	885.80	604.25	141050055	349124.50	99.8749	137.1363	30217863
19080	LQ2	420800	694.80	605.64	141470855	349819.30	99.8994	137.4518	30217863
16057	8P2	1492000	2450.00	606.50	142966855	352279.30	99.9143	137.6470	30217863
19080	LQ2	393200	648.00	606.79	143356055	352927.30	99.9188	137.7128	30217863
19080	LQ2	414750	683.20	607.07	143770805	353610.50	99.9231	137.7763	30217863
11076	QV2	554400	913.20	607.10	144325205	354523.70	99.9235	137.7831	30356809
16057	8P2	1412000	2324.00	607.57	145731205	356847.70	99.9302	137.8898	30356809
16057	8P2	1486452	2440.00	609.20	147223657	359287.70	99.9511	138.2597	30356809
16057	8P2	1508000	2472.00	610.03	148731657	361759.70	99.9604	138.4481	30356809
16057	8P2	1506000	2468.00	610.21	150237657	364227.70	99.9621	138.4890	30356809
16057	8P2	1492258	2436.00	612.59	151729915	366663.70	99.9814	139.0291	30356809
16057	8P2	1505625	2456.00	613.04	153235540	369119.70	99.9844	139.1312	30356809
16057	8P2	1480000	2404.00	615.64	154715540	371523.70	99.9975	139.7213	30356809
16057	8P2	1502000	2438.00	616.08	156217540	373961.70	99.9990	139.8212	30356809
16057	8P2	1518000	2462.00	616.57	157735540	376423.70	100.0000	139.9324	30356809
19080	LQ2	393677	638.40	616.66	158128217	377062.10	100.0000	139.9528	30356809

205 771362 1839.32 440.61 148081

413062 1073.90 92.91 157040

GENERALIZED BILL LISTING	212	KWH/30/KWH	HECO SCHEDULE PT1 TRANS, CY2003	RS94R1	04/30/04
RATE CODE	E P				
BILLING CYCLE					
BUS/STRUCT CODE					
DSCT/SURCH CODE					
PHASE CODE					
WH CODE					
MULTI-RES CODE					
SPEC STUDY CODE	E T1				
IRREGULAR CODE					
CUST CLASS CODE					
CURR BILL TYPE					
CUST MEAS & RNGE	R KWH3/M00000019999999				
REV MONTHS	R 03010312				
SMB-ACCT CODE					
ACCT STATUS					
BUS. CODE (3RD)					

CA-IR-530

DOCKET NO. 04-0113

PAGE 12 OF 13

GENERALIZED BILL LISTING													212	KWH/30/KWH	HECO SCHEDULE PT1 TRANS, CY2003					RS94R1	04/30/04	PAGE 3		
REPORT : 10																								
BILL NO.	ACCT NO.	BUS CODE	KWH	KW	KWH/KW	CUM KWH	CUM KW	CUM X @ Y % TOT-X	Y AS % Y/BILL	CUM RKVAH														
47	88006846057	7P3	1734194	2952.00	587.46	147879979	265632.00	99.3901	106.2008	8563509														
48	91002211002	7P3	1112000	1888.00	588.98	148991979	267520.00	99.4158	106.4756	9102075														
49	91002211002	7P3	1140000	1920.00	593.75	150131979	269440.00	99.4911	107.3379	9621474														
50	91002211002	7P3	1163077	1952.00	595.84	151295056	271392.00	99.5217	107.7158	9621474														
51	91002211002	7P3	1088000	1824.00	596.49	152383056	273216.00	99.5304	107.8333	10324253														
52	91002211002	7P3	1144000	1888.00	605.93	153527056	275104.00	99.6469	109.5398	10845475														
53	91002211002	7P3	1147500	1888.00	607.79	154674556	276992.00	99.6677	109.8761	11401235														
54	91002211002	7P3	1156364	1888.00	612.48	155830920	278880.00	99.7149	110.7239	11928090														
55	91002211002	7P3	1160000	1888.00	614.41	156990920	280768.00	99.7321	111.0728	12489904														
56	88006843057	7P3	1224000	1904.00	642.86	158214920	282672.00	99.9532	116.2160	12892213														
57	88006843057	7P3	1241379	1928.00	643.87	159456299	284600.00	99.9599	116.3986	13300235														
58	88006843057	7P3	1489655	2304.00	646.55	160945954	286904.00	99.9745	116.8831	13840908														
59	88006843057	7P3	1472000	2264.00	650.18	162417954	289168.00	99.9892	117.5393	14375173														
60	88006843057	7P3	1461818	2248.00	650.27	163879772	291416.00	99.9895	117.5556	14905742														
61	88006843057	7P3	1448000	2200.00	658.18	165327772	293616.00	100.0000	118.9856	15431296														

SUMMARIES ON REPORT : 10

AVERAGE	2710291	4813.37	533.15	252972
STD-DEV	3315954	5915.77	58.40	235324
COUNT	61			

LF = 51.3 07 8-7-8-0d

CA-IR-531

Ref: HECO-2210 and HECO-WP-2202, Page 10, Customer Costs.

According to footnote 1 on HECO-2210, calculated unit customer costs used in designing the

cost-of-service study.

- c. See Attachment 4 to HECO's May 5, 2005 transmittal of updates to the Consumer Advocate and the Department of Defense regarding the revised test year estimates of the expenses to

be included in base rates, based on HECO's understanding that other costs (relating to the existing energy efficiency and load management DSM programs (as well as shareholder incentives, and lost margins for program impacts not reflected in the test year sales) will continue to be recovered through a DSM surcharge; provided there continues to be a mechanism (such as a surcharge) for recovering incremental program costs and utility incentives, if any, resulting from DSM programs (and associated cost recovery mechanisms) approved after the rate case (for example, as a result of the Energy Efficiency Docket, Docket No. 05-0069). The company has not calculated the unit cost of service for any changes related to the DSM expenses noted above. The unit cost service will be calculated after a revised revenue requirement is completed in rebuttal testimony.

CA-IR-532

Ref: HECO Response to CA-IR- 368; Power Factor Adjustment.

The response states at part b, "The power factor adjustment is economically justified as it provides incentives to customers to install capacitors and reduce the kvar that they require from the system, thereby reducing the utility system costs." Please respond to the following:

- a. State whether or not HECO has any calculations, studies, workpaper or other information that compares the amount of "incentives to customers" to the related achieved "reduction in utility system costs," so as to determine if the level of existing power factor credits to customers are, in fact, "economically justified."
- b. If your response to part a is affirmative, please identify and provide complete copies of each document supportive of power factor credit economics.
- c. Please provide the dollar amount of total power factor billing determinants and billed revenue charges/credits by rate schedule, for each historical year 2002, 2003 and 2004.
- d. Please compare and reconcile the year 2003 actual power factor billings to all customers in each rate schedule, into the corresponding amounts set forth in test year revenue calculations at present rates and at proposed rates sponsored by witness T-3 (for example, HECO_RatePP_Draft_proposed_110704_final_eFile.wks, sheet "PowerFactor" indicates \$2.5 million and \$3.6 million of total Rate PP credits at present and proposed rate levels, respectively).

HECO Response:

- a. HECO is not proposing any changes to the power factor adjustment, and does not have the requested studies.
- b. Please see HECO's response to part a. above.
- c. The requested information is provided on page 3 of this response.
- d. Please see the data provided on page 3 of this response. The estimated power factor adjustment for Schedule PP of -\$2.5M at present rates and -\$3.6M at proposed rates was based on the class average power factor of 99% based on the customers' recorded billing loads for 2003. A review of the rkvh data from the rate run reports used to calculate the average class load factor of 99% was due to an error in the extract program used to extract

the rkvh from the billing records in ACCESS, which inadvertently was not recording and reporting the data from the var history files in ACCESS. The 95% power factor recorded for 2003 and 2004 will be used as the power factor adjustment for the test year estimate in rebuttal testimony.

HAWAIIAN ELECTRIC COMPANY, INC.
RECORDED POWER FACTOR ADJUSTMENTS AND BILLING DETERMINANTS

Power Factor Adjustment, (\$000)

	Schedule J	Schedule PS	Schedule PP	Schedule PT
2002	(\$393.2)	(\$412.8)	(\$1,382.6)	(\$53.0)
2003	(\$427.7)	(\$535.4)	(\$1,873.6)	(\$72.4)
2004	(\$445.2)	(\$539.2)	(\$1,667.8)	(\$61.7)
TY 2005 ¹	(\$369.2)	(\$690.4)	(\$2,500.7)	(\$82.7)

Power Factor Adjustment, (%)

	Schedule J	Schedule PS	Schedule PP	Schedule PT
2002	90%	93%	96%	91%
2003	90%	93%	95%	91%
2004	90%	93%	95%	91%
TY 2005 ¹	90%	94%	99%	91%

Revenues From Demand Charge, (\$000)

	Schedule J	Schedule PS	Schedule PP	Schedule PT
2002	\$15,375.4	\$15,864.6	\$34,192.7	\$2,560.3
2003	\$15,913.4	\$17,125.9	\$35,396.0	\$2,538.7
2004	\$16,501.3	\$17,277.4	\$35,890.7	\$2,410.1
TY 2005 ¹	\$14,665.7	\$18,302.9	\$38,132.4	\$2,691.6

Revenues From Energy Charge, (\$000)

	Schedule J	Schedule PS	Schedule PP	Schedule PT
2002	\$63,257.8	\$52,041.0	\$128,866.1	\$10,230.5
2003	\$69,635.1	\$55,772.6	\$132,890.0	\$10,622.4
2004	\$72,531.5	\$55,849.0	\$136,057.5	\$9,944.4
TY 2005 ¹	\$59,177.4	\$58,407.8	\$140,488.6	\$11,091.7

kvarhr

	Schedule J	Schedule PS	Schedule PP	Schedule PT
2002	387,256,123	300,281,600	614,345,380	74,704,000
2003	421,240,699	319,718,720	604,338,257	75,184,000
2004	452,268,158	319,817,900	630,033,980	76,400,000
TY 2005 ¹	329,938,325	300,126,517	333,683,629	75,365,981

At present rates. See HECO-WP-304, pages 53, 54, 110, 124, and 149.

CA-IR-533

Ref: HECO T-10, page 35, & HECO-WP-2303 (DSM Costs).

On March 16, 2005, the Commission issued Order No. 21698, which separated HECO's DSM and load management requests from the rate case and opened Docket No. 05-0069 to consider those issues. Please provide the following:

- a. Does the Company concur that the 2005 test year forecast should be adjusted to remove these costs from overall revenue requirement? If not, please explain.
- b. Please provide a quantification of the adjustments required to remove DSM and load management costs, revenues and/or investments from HECO's 2005 test year forecast.

HECO Response:

- a. Yes.
- b. The quantification of the adjustment required to remove DSM and load management costs from HECO's 2005 test year forecast has been described in the May 5, 2005 letter to the CA

and DOD (HECO 2005 Test Year Rate Case - Updated) and in the May 11, 2005 letter to the CA.

stipulated to and approved by the Commission in 2004 in Docket Nos. 03-0166 (RDLC Program) and 03-0415 (CIDLC Program).

The additional \$100,000 was the estimated amount to be used to conduct a follow-up telemarketing campaign to increase the participation rate of customers receiving the targeted RDLC direct mailings from the current 5% to an estimated initial 10%-15%. Based on discussions with a couple of companies who are potential providers of telemarketing services since the filing of the May 5, 2005 letter, however, \$125,000 is a more reasonable estimate of the cost of telemarketing for the 6 remaining months of 2005.

Moreover, the telemarketing campaign is expected to continue into the following year (2006) and for the foreseeable future because RDLC Program enrollment is expected to become more challenging in the years ahead. Therefore, HECO is increasing its test year estimate of RDLC advertising expenses by \$175,000, from \$150,000 to \$325,000, to reflect a full year direct mail campaign (\$50,000), telemarketing (\$250,000), and the addition of a customer recognition campaign (\$25,000) to retain previously enrolled customers.

The revised test year base rate budget for the RDLC Program is as follows:

Achievement of RDLC Program load reductions and enrollment of RDLC

Program participants will become increasingly more challenging for the following reasons: (1) First year direct mailings will have covered most of the island-wide eligible customers and signed up those that are the most highly motivated to enroll in the program. Customers approached in following years will be those that were unwilling or unable to participate during the first year. (2) The target for program

participants will increase. As indicated in Attachment A of the Commission's Decision and Order No. 21415, dated October 14, 2004, in Docket No. 03-0166, the number of participants increases in Year 2 and 3 to 7,500 from the Year 1 target of 5,000.

HECO expects that the energy awareness and education campaign (see 2. below) will have a positive effect on the participation and retention rates in the RDLC Program. However, the Company must still provide the means for customers to enroll in the program. Those means will continue to be direct mailings and the telemarketing campaign.

CIDLC program participants once enrolled must also be retained. Therefore, HECO proposes to add an advertising component of \$25,000 to the CIDLC budget included in base rates. The CIDLC Program advertising component will recognize commercial and industrial participants in print and radio, provide materials for display in their offices and/or storefronts identifying them as CIDLC Program participants, and any other advertising focused on reinforcing participation and/or recognizing participants. The major purposes of the advertising are to (1) publicly recognize the contributions that participants are making to maintaining electrical system reliability for everyone, and (2) assure residential customers that the commercial and industrial sector

is also contributing to demand reductions. The addition of \$25,000 in advertising to the CIDLC base rate budget increases the CIDLC Program test year expense from \$125,671 (see Attachment 4, page 2 of 2, in the May 5th letter) to \$150,671.

The revised CIDLC test year budget is:

	<u>Attachment 4</u> <u>5/5/05 letter</u>	<u>Adjustment</u>	<u>REVISED</u> <u>DSM Expense</u> <u>in Base Rates</u>
Direct Labor	119,443		119,443
Advertising		25,000	25,000
Miscellaneous	<u>6,228</u>	<u> </u>	<u>6,228</u>
Total	125,671	25,000	150,671

An update to Attachment 4 of the May 5, 2005 letter, including the above revisions to the DSM expenses proposed in base rates, is attached on page 8 and 9.

2. Corporate Advertising Costs in Base Rates

One of the DSM programs included in the rate case application was the proposed Residential Conservation Energy Awareness (“RCEA”) program, for which an application was filed for a two-year pilot program in Docket No. 03-0142. The stated purpose of the proposed pilot program was to determine if an aggressive communications program can change the level of customer energy awareness of energy options, and encourage customers to adopt energy efficient appliances and behavior, with the objective of helping to achieve energy savings and peak load reductions. By Decision and Order No. 21756, issued April 20, 2005, the Commission denied the application, as revised on October 7, 2004, without prejudice (based on concerns raised by the Consumer Advocate). At the same time, the Commission noted that (1) it “understands HECO’s need and desire to educate its residential customers about energy

matters, including conservation,” and (2) “[a]n educational program, such as the RCEA Pilot Program may be better suited as one component of a portfolio of DSM measures, which may be considered in other proceedings before the Commission, if HECO so chooses.”

In light of the concerns raised by the Consumer Advocate, the Commission’s decision, and the critical need to encourage residential customers to adopt cost-effective conservation resources and practices, HECO intends to add \$750,000 to its test year general advertising budget in order to enhance the Company’s ability to educate and inform its customers about ways that they can save energy and reduce their peak demands.

~~Given current conditions, HECO has developed a~~



conservation and energy efficiency message, which will be critical through at least the

plan.) Details about the Company's DSM Programs, however, will continue to be provided under HECO's separate DSM Program advertising budgets.

The energy awareness and educational messages are not necessarily sequential or exclusive, i.e., the campaign may move to a focus on the second message, but continue to reinforce the first. Thus, it is entirely possible that, over a given period of time, all three messages will be heard and/or seen by our customers.

In order to fund this campaign HECO has increased its test year Corporate

Communication's corporate advertising budget to \$1 million. The original plan for this year was to spend \$250,000 for conservation advertising. This \$250,000 has been included in the 2005 test year advertising budget. However, given the reduced reserve capacity margins and the need to accelerate conservation education, HECO has been developing plans to augment the original \$250,000 by an additional \$250,000 for this year. (Corporate Communications still plans to expend about \$120,000 for general advertising costs to meet customer obligations and promote other activities, not directly connected with conservation.). The total budget of \$500,000 would provide enough funding to expose customers to the first message of using energy wisely, but would only provide initial exposure to the second and third messages, reducing energy use at the peak, and during emergencies, respectively.

An increase in the original 2005 test year corporate advertising budget for conservation advertising of \$250,000 by \$750,000, for a total of \$1 million (less than the \$1.8 million per year for two years proposed for the RCEA Program), would allow HECO to pursue a more fully funded advertising campaign.

In conjunction with its integrated advertising campaign, HECO would work with the EPA to promote Energy Star as a residential and commercial solution for energy efficiency. For the residential market, HECO would develop educational advertisement and point of sale collateral materials. HECO would explore partnerships with appliance retailers and distributors. Commercial efforts would focus on design assistance and educational workshops and seminars for operations and facility managers.

REVISED DSM Program Expense Summary
Docket No. 04-0113

	2005 Test Year Estimate*	Adjustment	Revised 2005 Test Year Estimate	CA-IR-446 CA-IR-533 Revisions	Revised 2005 Test Year Estimate
1 Incentives	10,863,285	-10,863,285	0	0	0
Direct Labor					
2 Base	368,074	296,011	664,085	0	664,085
3 Incremental	<u>1,435,317</u>	<u>-1,435,317</u>	0	0	0
4 Subtotal	1,803,391	-1,139,306	664,085	0	664,085
Outside Services					
5 Implementation	4,095,770	-4,095,770	0	0	0
6 Tracking	35,000	-35,000	0	0	0
7 Evaluation	175,501	-175,501	0	0	0
8 PEA, Feasibility Studies	<u>425,000</u>	<u>-425,000</u>	0	0	0
9 Subtotal	4,731,271	-4,731,271	0	0	0
10 Advertising/Marketing	3,221,841	-3,071,841	150,000	200,000	350,000
11 Material, Travel, Misc.	<u>834,843</u>	<u>-815,115</u>	19,728	0	19,728
12 Subtotal	21,454,631	-20,620,818	833,813	200,000	1,033,813
13 Shortfall Recovery	6,129,646	-6,129,646	0	0	0
14 Return on Costs	<u>2,668,901</u>	<u>-2,668,901</u>	0	0	0
15 Total DSM Expenses	\$30,253,178	-\$29,419,365	\$833,813	\$200,000	\$1,033,813

* Source: HECO-WP-1104, p. 1 of 12.

Note:

These are the revised test year estimates of the expenses to be included in base rates, based on HECO's understanding that other costs relating to the existing energy efficiency and load management DSM programs (as well as shareholder incentives, and lost margins for program impacts not reflected in test year sales) will continue to be recovered through a DSM surcharge; provided there continues to be a mechanism (such as a surcharge) for recovering incremental program costs and utility incentives, if any, resulting from DSM programs (and associated cost recovery mechanisms) approved after the rate case (for example, as a result of the Energy Efficiency Docket No. 05-0069).

REVISED Amount of DSM Expenses Proposed in Base Rates (\$)

	2004 M&E Report *	Adjustment **	REVISED DSM Expense in Base Rates 340,742	CA-IR-446 CA-IR-533 Revisions	REVISED DSM Expense in Base Rates 340,742
Labor	340,742				
C Expenses to be Recovered in Base Rates ¹					
Direct Labor	203,900		203,900		203,900
Advertising	50,000	100,000	150,000	175,000	325,000
Miscellaneous	13,500		13,500		13,500
RDLC	267,400	100,000	367,400	175,000	542,400
C Expenses to be Recovered in Base Rates ²					
Direct Labor	119,443		119,443		119,443
Advertising			0	25,000	25,000
Miscellaneous	6,228		6,228		6,228
CIDLC	125,671	0	125,671	25,000	150,671
in Base Rates	733,813	100,000	833,813	200,000	1,033,813

and November 30, 2004, Attachment A.
Adjustment for RDLC Advertising: Additional marketing expenses necessary
necessary to achieve Year 1 peak impacts.

s:
D&O 21415, October 14, 2004, Docket No. 03-0166, p. 12.
D&O 21421, October 19, 2004, Docket No. 03-0415, p. 11.

Hawaiian Electric Company's

Integrated Conservation / DSM Campaign

Hawaiian Electric
Company

Confidential

1

Our Situation

- ☐ Oahu is facing shrinking power reserves.

- ☐ At HECO, we are doing all we can on the supply side of the meter and offering help with the customer side.

Hawaiian Electric
Company

Confidential

2



Our Situation

- To achieve greater customer acceptance of efficiency and conservation, we need to reshape attitudes about electricity that translate into new energy-saving behaviors and help meet DSM goals.

In the Past

- HECO had two dominant strands of paid media (and collateral) with different messages

(Plus event and "one-off" marketing for Electron Marathon, Arbor Day, cook books, etc.)

Corporate	DSM
The guru (My Home Energy Check)	Solar water heating, Energy \$olutions for Business
	

- Separate budgets, limited coordination -

Starting now...

- ☐ HECO will have **one integrated - and layered – message** advocating conservation, efficiency (DSM) and emergency responsiveness:

***‘Our company and our customers
are partnering to use electricity
wisely’***

Integrated campaign goals

- ☐ Make maximum use of limited advertising dollars
- ☐ Achieve DSM goals
- ☐ Present customers widest range of energy choices
- ☐ Create a common look and feel to all messages
- ☐ Begin the process of repositioning company for the future

Layered Message -- Basic

Use energy wisely at all times. Live Energy Lite, take advantage of Home and Business Energy\$olutions. Remember, we all have a part to play, we can start now and every little bit helps.

Priorities include solar water heating, CFLs and Energy Star. Use fans in place of A/Cs. Do laundry cold/cold, etc.



Hawaiian Electric
Company

Confidential

7

Layer Two

It makes special sense to use energy wisely **during the peak** from 5 to 9 pm weekdays when we all use the most electricity.

Use energy wisely at all times. Remember, we all have a part to play, we can start now, and every little bit helps.

Hawaiian Electric
Company

Confidential

8

Layer Three

In an **electricity emergency**, HECO may ask you to dramatically cut power use even more than usual. Please be ready to help.*

Use energy wisely during the peak

Use energy wisely at all times.

*** Important Note**



One way you can play a big part is to let us install an **ENERGYSCOUT** (direct load control switch) on your water heater to help protect our system during emergencies.

IMPORTANT

These are **NOT** sequential messages, one leading smoothly into the next.

The general conservation/DSM, peak use, ENERGYSCOUT and emergency messages are out there already.

What actions do we seek?

From the General Public

- Reshape general attitudes in favor of using energy wisely. Instill electricity conservation behaviors.
- Be aware of the "peak" and know that in a generation emergency, conservation and ENERGYSCOUT improve reliability, avoid blackouts and help defer the need for new generation.

What action so we seek?

From the General Public

- Notice and accept requests to respond to electrical emergencies.
- Embrace a future of conservation with “Live Energy Lite” and Energy\$olutions, choosing the options that are practical in each person’s life.

What actions do we seek?

From Homeowners

- Use conservation tips
 - Install ENERGYSCOUT
- or
- Install solar water heating and
 - Buy Energy Star appliances and take other efficiency measures



What actions do we seek?

From Business Customers

- Get help from Energy\$olutions for Business to cut electricity use, gain cost savings and rebates, be good citizens
- Voluntarily limit electricity use at peak and
- Use ENERGYSCOUT or the voluntary load control program

What actions do we seek?

From Leaders and Influencers

(business, celebrity, social, religious, environmental)

- Understand and discuss the issues
- Praise and encourage positive actions
- Lead by example

How do we achieve this?

An Integrated Conservation-Efficiency Marketing Campaign

that combines the talents, ideas, enthusiasm and budgets of several departments

How to manage process?

Team up **Customer Solutions, Education & Consumer Affairs, and Corporate Communications**

(with input from Regulatory and the Controller on budget matters)

Elements of the campaign

- Unified look and sound (logos, graphics, music...)
- HECO publications and promotions (Consumer Lines, heco.com...)
- Events (HECO in Your Community, Energy Awareness month...)

...more

Elements of the campaign

- Partnership promotions (General Electric CFL co-promotion...)
- Public Relations (press releases, op-ed newspaper pieces, story pitches...)
- Hawaii's Energy Future speeches
- Paid media (television, radio and print advertising, collateral...)

Paid advertising

- ☐ Television -- "The Groove" and "Cool Tips," plus on-going solar spots
- ☐ Radio/print advertising – more detailed, customized to audiences for DSM, conservation and ENERGYSCOUT

(Also "event advertising" -- budgeted separately, but integrated -- for "one-offs" such as Arbor Day, Electron Marathon, Earth Day, October Energy Awareness Month Event, etc.)

Integrated Campaign Goals

Raise energy awareness
Create a "use-it-wisely" ethic
Meet DSM goals

Will this be overkill?

Old Communicator's Wisdom:

"Just when you are sick of repeating the same message over and over again, that is when your listeners start to hear you."

Integrated Campaign

Delivering a message

- First, they do not hear you.
- Then, they do not understand you.
- Then, they do not believe you.
- Finally...

Integrated Campaign

After many repetitions...

- Most recall hearing you say something.
- Many begin to hear you.
- Some begin to understand you.
- A few actually believe you.
- And any who act on that belief...think it was their own idea in the first place.

Integrated Campaign

Questions?
Comments?



*"Compact fluorescents? Why, that's
the worst idea since alternating current."*

CA-IR-534

Ref: Response to CA-IR-278, Part c.

The information provided is not responsive. For example, please provide copies of all workpapers, analysis, reports, etc. that were prepared and used to develop the information contained in the AOS 2005.

HECO Response:

See HECO's response to CA-IR-452 filed with the Consumer Advocate and the Department of Defense on April 7, 2005.

CA-IR-535

With respect to pages 24 to 27 of the Company's March 10, 2005 Adequacy of Supply report to the Commission:

- a. Please identify (i.e., separately) the megawatt contribution from each of the "mitigation measures" identified, in each year 2005 through 2009.
- b. Please reconcile the resource plan that the company will pursue in the form of "mitigation measures" to the "six proposed resource plans" that the Company discusses at the bottom of

page 22. That is, please explain whether HECO plans to pursue the mitigation measures and (i) all of the six resource plans, (ii) one of the proposed resource plans, (iii) some combination of mitigation measures and resource plan measures, or (iv) has some other resource plan in mind.

- c. To the extent not addressed in the response to part (b) above, please identify the complete package of resources that HECO plans to acquire during the next five years to respond to the identified capacity shortage.

HECO Response:

- a. Items 5.1, 5.2, 5.3 and 5.4 discussed on pages 24-25 of the 2005 AOS report, are identified as actions already taken and/or being undertaken by HECO (and the anticipated results are already reflected in the base resource case assumed for the 2005 AOS report), and not as

expected to contribute to the projected EFOR improvement over the 2004 actual EFOR results. As provided in HECO's response to CA-IR-461, HECO is forecasting a lower HECO system composite EFOR for the period 2005-2009 compared to that experienced in 2004. HECO has not attempted to calculate a precise impact of the efforts to reduce EFOR, but HECO did perform a sensitivity analysis in its 2005 AOS to show the impact on the reserve margin shortfall if EFORs are 20% higher than forecast. Please refer to Appendix 5 of the HECO 2005 AOS report.

With respect to maintaining or improving the availability of Independent Power Producers ("IPPs"), HECO is not able to quantify the impact that careful scheduling and coordination of HECO and IPP maintenance will have on improving generating system reliability. Therefore, HECO cannot equate this to a megawatt contribution.

With respect to accelerating the installation of the next generating unit, HECO is working to keep the unit on schedule for a 2009 commercial operation date. The simple-cycle combustion turbine (Item 5.5, page 25 of the 2005 AOS Report) is expected to eliminate the shortfall. See response to CA-IR-573. If the commercial operation date is delayed, the amount of the impact will be equal to the amount of the installed capacity. The analyses done for the 2005 AOS Report assumed an installed capacity of 76 MW, but the actual unit selected may have a higher capacity, as indicated in the response to CA-IR-446, part a.

With respect to the potential contribution from distributed generation at HECO substations, the expected contribution from DG at HECO sites is expected to be 14.64 MW by the end of 2005. HECO does not have an estimate at this time as to the amount by which this might be increase in subsequent years. See HECO's response to CA-IR-574, part b.

With respect to the demand load response program, the program is currently under development. HECO has retained a consultant to develop a demand load response program and expects to file an application with the Commission by mid-2005. Documentation regarding a proposed program will be available at that time.

With respect to the Residential Air Conditioning Load Control Program, following the filing of the Demand Load Response Program, HECO will pursue the development of a residential air conditioning load control program. HECO's Residential Direct Load Control (RDLC) Program, approved by the Commission in 2004, focuses on interrupting electric resistance water heaters only.

With respect to the public notification program, the potential contribution will depend upon the success of HECO's integrated advertising campaign to encourage energy conservation and efficiency (see response to CA-IR-446.a and CA-IR-533). and the

conditions that exist at the time public notification is made. These conditions include, but are not limited to, the time of year, time of day, weather conditions (e.g., ambient temperature, wind speed, humidity), system demand, the success of HECO's direct load control programs, and the willingness and ability of our customers to reduce load at the time the public notification is given.

- b. Please refer to HECO's response to CA-IR-282, part b., for the list of the six candidate plans developed in the HECO IRP-3 process with Advisory Group input. One of the six plans will be selected as the Preferred Plan. HECO plans to pursue the mitigation measures and the Preferred Plan.
- c. At this time, HECO anticipates that, during the next five years, it will (1) pursue enhanced

energy efficiency DSM (page 3 of 2005 AOS report)¹, (2) continue implementation of its two approved load management DSM programs (Residential Direct Load Control, Commercial & Industrial Direct Load Control), (3) pursue approval and implementation of its proposed CHP Program and Rule 4 contracts, (4) seek final Commission approval of Amendment Nos. 5 and 6 to the HECO-Kalaeloa PPA to acquire up to an additional 29 MW of firm capacity, (5) pursue passive investment in renewable energy projects through its subsidiary, Renewables Hawaii Inc., and pursue (6) the action items and mitigations measures described on pages 24 to 27 of its 2005 AOS report and discussed in part a. above. Please also refer to HECO response to CA-IR-273.

¹ On March 16, 2005, the Commission issued Order No. 21698 in Docket No. 04-0113 (HECO Request for Approval of Rate Increases and Revised Rate Schedules and Rules, and for Approval and/or Modification of Demand-Side Management and Load Management Programs and Recovery of Program Costs and DSM Utility Incentives) which separated HECO's requests for approval and/or modification of DSM and load management programs and recovery of such program costs and DSM utility incentives from Docket No. 04-0113 and opened a new Energy Efficiency Docket (Docket No. 05-0069) in which these matters will be considered. HECO will be seeking Commission approval of three new programs (Residential Customer Energy Awareness, Residential Energy Solutions for the Home, and Residential Low Income) in the Energy Efficiency Docket. In Order No. 21698, the Commission also allowed HECO to temporarily continue, in the manner currently employed, its existing two residential DSM programs and three commercial and industrial DSM programs.

CA-IR-536

Ref: HEI Form 10-K dated 3/11/2005, page 45.

According to the Report, "HECO and its subsidiaries expensed approximately \$3.3 million, \$3.1 million and \$2.8 million in 2004, 2003 and 2002, respectively, for research and development. Contributions to the Electric Power Research Institute accounted for more than half of the expenses. There were also expenses in the areas of energy conservation, new technologies, environmental and emissions controls, and expenses for studies relative to technologies that are applicable or may be applicable in the future to HECO, its subsidiaries and their customers." Please provide the following information:

- a A detailed breakdown of R&D expenditures by NARUC Account and by project/payee in each year 2002 through 2004 and in the projected test year.
- b Explain the variations between test year proposed R&D and historical expenditure levels set forth in the response to part (a).

HECO Response:

- a A breakdown of R&D expenditures by NARUC Account is provided on Page 5 for 2002-2004 and in the projected test year. A breakdown by project/payee is not available since all of the R&D charges were not to projects.
- b Explanations of the larger variations between the test year proposed R&D and historical expenditure levels as shown in part a. are provided below by NARUC account.

NARUC 506030:

The test year 2005 proposed R&D for 50603 includes \$75,000 in expenditures for Sun Power for Schools related to three photovoltaic installations on public school rooftops. HECO will revise its test year estimates to reduce the Sun Power for Schools test year expense to zero in its rebuttal testimony per CA-IR-186.

Historical expenditures mainly account for various activities related to Sun Power for Schools, renewable energy bills in the legislature, Hawaii Natural Energy Institute fuel cell test facility (at HECO's Cooke Street warehouse), combined heat and power

demonstrations, Electric Power Research Institute, and various photovoltaic projects and initiatives.

NARUC 549:

The variation between the test year 2005 proposed R&D and historical expenditures levels for NARUC 549 are primarily related to the electronic shock absorber phase II demonstration project (\$500,000) and biomass initiative (\$100,000).

The electronic shock absorber will help stabilize operation of grid-connected wind turbines and minimize power fluctuations on an electric grid that is connected to a number of wind farms. HECO, HELCO, and MECO have teamed with a private company to conduct a study and confirm that a device can be developed from commercial products for installation between a wind farm and the utility grid. The purpose of the device is to help the electric utility ride through short duration power fluctuations (frequency, voltage, etc.) from the wind farm caused by the variable nature of wind. A demonstration unit is being built and will be tested in 2005. The test year proposed R&D cost includes \$500,000 for the

electronic shock absorber demonstration unit.

The biomass initiative is a possible collaboration with the University of Hawaii at Manoa and Hawaiian Commercial and Sugar Company to promote opportunities and accelerate the commercialization and deployment of biomass power technologies and operations in Hawaii. The biomass initiative will also fund an on-going biofuels assessment program to investigate the use of liquid biofuels (See CA-IR-186), and for possible studies and activities related to co-firing of biomass.

Historic expenditures are limited in that they only include the initial payments in 2004 for the electronic shock absorber. The historical expenditures do not include any charges for the biomass initiatives.

NARUC 588 & 598:

Variation between the test year proposed R&D and historical expenditures are primarily due to the refocused labor of HECO engineers on various research and project activities. Labor and non-labor expenses associated with the researching of new technologies, equipment, and solutions, as well as projects related to advanced high temperature, low sag conductors, dynamic thermal circuit rating of conductors, and cable testing methodologies are a function of HECO's ongoing prioritization of projects and initiatives. Therefore expenditures in these NARUC accounts vary from year to year.

The test year proposed R&D relates primarily to the EPRI-based T&D Maintenance Optimization Program. Information regarding this project is provided in CA-

IR-56.

NARUC 920, 921, and 9302:

Variations between test year proposed R&D and historical expenditure levels reflect the department's plans to increase activity in the renewable energy area.

The Energy Solution & Technology Department was formed in mid-2002 to aggressively pursue, recommend and implement, where feasible, new energy-related technologies and alternatives, such as distributive generation, hydrogen technologies, net energy metering, and renewable portfolio standards. The focus of this area supports HECO's commitment to establish itself as a leader in energy services and to reduce Hawaii's reliance on fossil fuels and enable greater self-sufficiency.

As the department grew, various programs and strategies were developed. A

State law was also enacted which called for utilities to increase the percentage of renewable energy on the utility electric system. The 2005 budget is a reflection of the department's plans to meet their internal objectives as well as comply with the current state law by increasing activity in the renewable energy area. Wind technology is one of the areas identified as a renewable resource in our test year amounts. However other renewable resources may also need to be funded in 2005.

A \$249,000 placeholder was included in test year 2005 for local research

HECO
Breakdown of Research & Development Expenses*

NARUC	Actual			Test Year	Adjustments	Updated Test Year
	2002	2003	2004	2005		2005
506030	381,200.29	225,519.31	154,327.71	89,048.84	(75,000.00)	14,048.84
514030		554.01	5,470.08			
549			151,450.00	600,000.00		600,000.00
566	3,035.77	43.93				
573	2,369.21					
588	125,093.69	98,568.17	49,853.61	141,968.31		141,968.31
598	34,704.88	5,929.08		174,999.96		174,999.96
905			1,967.74			
909			766.80			
912				17,842.41		17,842.41
920	62,349.63	67,867.44	33,046.96	115,636.83		115,636.83
921	61,261.09	100,762.62	254,168.83	517,539.32		517,539.32
9302	1,515,295.51	1,990,453.58	1,939,940.52	2,352,312.49	(96,500.00)	2,255,812.49
	2,185,310.07	2,489,698.14	2,590,992.25	4,009,348.16	(171,500.00)	3,837,848.16

* Does not include on-cost reclassification adjustment.

CA-IR-537

Ref: HEI Form 10-K dated 3/11/2005, page 34.

[REDACTED]

- **October 11, 2004** – HECO hits a record peak demand of 1,319 megawatts on Discoverer's Day. Weather is hot and humid. The following is a status of generating units that were either unavailable or operated with deratings:

Waiau Unit 3 – Unit returned from a major overhaul on October 8, 2004, and was derated to 40 MW (normally 49 MW) due to condenser air leakage.

Waiau Unit 7 – Experiencing condenser pluggage due to shellfish.

Waiau Unit 8 - off line from 8/20/04 for a 10 week scheduled major overhaul

Waiau Unit 9 – unit tripped at 7:03 pm from 15 MW due to high vibration.

Investigation to start on 10/12/04 after allowing the unit to cool.

Kahe Unit 3 – Unit derated (minus 7 MW) to 83 MW due to high furnace pressure. Normal rating is 90 MW.

HRRV – Unit derated to 23 MW due to scheduled maintenance on Boiler #2.

- **October 12, 2004** – HECO hits yet another record peak demand of 1,327 megawatts, surpassing the record peak set the day before. Weather is very hot and humid. The following is a status of generating units that were either unavailable or operated with deratings:

Waiau Unit 3 – Unit tripped at 10:10 pm on 10/12/04, due to the activation of a generator protective relay. Problem was traced to a faulty auxiliary transformer.

Waiau Unit 7 – Continue to experience excessive condenser pluggage due to shell fish. Unit's output must be lowered to 50% capacity every 1.5 – 2 hours to allow manual condenser cleaning.

Waiau Unit 8 – Unit remained down on overhaul.

Waiau Unit 9 – Confirmed compressor blade failure by visual inspection through the compressor inlet guide vanes.

Kahe Unit 3 – Unit derated (minus 7 MW) to 83 MW due to high furnace pressure.

HRRV – Unit derated to 23 MW due to scheduled maintenance on Boiler #2.

KPLP – CT2 is shutdown at 9:03pm due to a tube leak in the heat recovery steam generator (HRSG). The unit is cooled down for inspection on 10/13/04.

- **October 13, 2004** – Hot and humid weather continues and HECO anticipates evening peaks as high or higher than the previous two days. The following is a status of generating units that were either unavailable or operated with deratings:

Waiau Unit 3 – Unit returned to service at 12:05pm after isolating the auxiliary transformer.

Waiau Unit 7 – Unit continues to cycle down to 50% load every 1.5 – 2 hour to allow manual condenser cleaning due to shellfish pluggage.

Waiau Unit 8 – Unit down for overhaul.

Waiau Unit 9 – Unit down on forced outage.

Kahe Unit 3 – Unit derated (minus 7 MW) to 83 MW due to high furnace pressure.

HRRV – Unit derated to 23 MW due to scheduled maintenance on Boiler #2.

KPLP – CT2 – Confirmed tube leak in the CT2 HRSG. Repairs were completed and the unit returned to service at 5:05pm, in time for the evening peak.

- c. Scheduled Maintenance - Unit outage reports are available for HECO units only.

- Waiau Unit 8 – Please refer to the 2004 Outage Summary report for the Waiau Unit 8 major overhaul in CA-IR-129.
- Waiau Unit 9 – The outage summary report for the Waiau Unit 9 major overhaul portion of the outage will be developed in approximately two months (June, 2005).

Unscheduled Maintenance

- Waiau Unit 3 - An outage report was not developed for the Waiau Unit 3 forced outage since the problem (defective auxiliary transformer) was troubleshot and determined to be a faulty transformer. The transformer was isolated and the unit returned to service using the backup startup transformer within 2 days while a new transformer was ordered.
 - Waiau Unit 9 – An outage report is not available at this time since the unit returned to service on April 8, 2005. As mentioned above, a report is expected some time in June, 2005.
 - KPLP – An outage report on the HSRG tube leak on CT2 is not available.
- d. Of the outages discussed above, the incurred costs by NARUC Account is available for Waiau Unit 8 (August, 2004 – October, 2004) and Waiau Unit 9 (October, 2004 – April,

2005) only. The cost breakdown is provided on page 14 below. Incurred costs for the IPP outages are not available.

Generation Condition 3 Script

October 13, 2004

REVISION 3 – 9:28 a.m.

Script #1 for commercial customers (for release during Generation Condition #3)

Good morning,

A large number of generating units are out of service for planned and unscheduled maintenance today, including units from independent power producers that sell power to HECO.

The hot weather has increased our demand for electricity. We've seen record levels of evening peak demand for electricity on Monday and Tuesday. If this hot weather continues, the high demand for electricity will continue.

Our generation margins are very, very tight right now. If any other generating unit experiences problems, there will be outages.

We are asking for your help. We need you to voluntarily cut back on non-essential electricity use as much as possible. We will be asking the general public to do the same through the media shortly.

Also, you may want to consider checking your emergency generator, or conducting a drill on how your business operations would be affected if you were to experience an outage.

We are doing all we can to avoid this happening, but we wanted to keep you posted. I'll keep in close contact with you throughout the day.

Aloha,

If asked, you can provide the following information:

Q. Are we close to blackouts?

A. Closer than we have been in recent memory. We have enough capacity to meet the peak load, but our generation margins are

— Generation Condition 3 Script

October 13, 2004

extremely tight. If any other generating unit is lost for any reason, we could be experiencing outages today.



Hawaiian Electric Company

NEWS • RELEASE

For more information contact:
Jose Dizon
Ph. 543-7753; 223-9932 (cell)

10 a.m. October 13, 2004

– For Immediate Release –

HECO asks Oahu customers to conserve power

Island hits record high use last night for the second night in a row

Hawaiian Electric Company (HECO) is asking Oahu customers to conserve electricity until after 9 p.m. today to help avoid a power outage on the island. Oahu's reserves of power generation are very tight today due to the hot weather and the reduced power generation available. Two HECO generators are not available due to unanticipated maintenance and a generating unit operated by an independent power producer that sells power to HECO is also unavailable.

"Unfortunately, customer demand hit a new record high last night at 1,327 megawatts," said Chuck Freedman, HECO vice president for corporate relations. "This was on the heels of a record peak demand just the night before at 1,319 megawatts and represents a 3.3% increase in the peak demand over last year. With the muggy conditions forecast again for today, we may hit yet another new high tonight. So we are calling on all customers to cut electricity use throughout the day as much as possible. Conservation will help."

HECO has one generator out of service for planned maintenance and the City's HPOWER unit is operating at reduced power for planned maintenance.

In addition, two other generators at HECO's Waiau power plant were shut down for unanticipated maintenance yesterday and the company is still determining when they will be available for service again. Another generator owned and operated by Kalaeloa Partners was also taken offline for unanticipated repairs last night and may return to service later today.

Although HECO currently has enough power generation available to meet expected power demand today, should another generator go out of service for any reason or should demand for power exceed estimates, it is possible that the company would need to implement load shedding, a process of systematically turning off the power to blocks of customers in order to maintain the stability of the electric system.

HECO asks Oahu customers to conserve power
October 13, 2004
Page 2

In order to ensure sufficient power to meet the peak demand for electric power, HECO is asking customers to conserve energy by reducing use of electric appliances and delaying use when possible until after 9 p.m.

Suggested conservation steps include:

- Delay activities such as running electric clothes washers and dryers and doing laundry or running electric dishwashers.
- Use fans instead of air conditioners today if possible. Otherwise, turn off air conditioners and other appliances when rooms are empty. Consider running an AC on low in one room and moving cooler air by fans which use less power.
- Especially reducing electricity use at the peak residential use times, which are weekdays from 5 p.m. to 9 p.m.
- Take shorter showers, which can save both energy and water, or delay them until later in the evening.

Large commercial customers are also being contacted to ask for their assistance implementing conservation measures at their operations.

#

Fujinaka, Aaron

From: Unemori, Lynne
Sent: Wednesday, October 13, 2004 10:13 AM
To: zz\$All HECO; Reinhardt, Edward; Lee, Warren; \$ALLHEI
Subject: HECO issues call for conservation today

Attachments: Call for conservation 10-13-04.doc

We hit another peak last night -- 1327 MW at 6:49 p.m. Unfortunately, with the hot weather continuing and some unexpected problems with generators, our generation reserve margins are getting very tight. The attached press release was just sent out to the media to ask the public to help CONSERVE electricity today through this evening. It also provides a little more detail on our generation situation. We hope to avoid power problems but we do need to ask the public's help to get through this power crunch and it's a good opportunity to reinforce the message we were already trying to get out this month -- that energy conservation is important at anytime.



Call for
conservation 10-13-04

ase post this info for those employees who are not on email **



Hawaiian Electric Company

NEWS • RELEASE

Contact: Jose Dizon
Phone: (808) 223-9932

7:20 p.m. October 13, 2004

-- For immediate release --

HECO announces improved electricity generation conditions *But reminds customers that conservation should remain a priority*

(Honolulu, HI) As of 7:20 p.m. this evening, Hawaiian Electric Company announced that electricity generation conditions on Oahu have improved, and the potential for outages due to a shortage of power has been significantly reduced.

Earlier in the day, HECO had contacted large customers directly and issued an appeal through the news media asking Oahu customers to conserve electricity. Oahu's reserves of power generation have been tight due to the hot weather and the reduced power generation available. In addition to generators out for normal planned maintenance, two HECO generators were not available due to unanticipated repairs; a generating unit operated by an independent power producer that sells power to HECO was also unavailable.

By this afternoon, one of the two HECO generators out for emergency repairs was restored to service and by early this evening, the generator operated by independent power producer Kalaeloa Partners at Campbell Industrial Park was also back online.

Although today's power crunch has been averted, HECO reminded customers that conserving electricity remains a good idea all the time, whether in a generation shortage situation or not.

"We really appreciate the way Oahu customers, big and small, responded to the call for conservation," said Chuck Freedman, HECO vice president of corporate relations. "As of 7 p.m. this evening, the peak demand for power was at 1,278 megawatts, down 49 megawatts from yesterday's peak of 1,327 megawatts. It is likely a large portion, though not all, of that savings is due to individuals and businesses doing the right thing and we are grateful."

"Our military friends at Pearl Harbor and our interruptible load customers have really come through for us," he said. "Pearl Harbor was able to supply us additional megawatts of emergency standby power. Interruptible load customers pay a reduced rate with the understanding that HECO has the ability to shut off their power in an emergency. Other large customers have been cooperative as well."

###

Fujinaka, Aaron

From: Dizon, Jose
Sent: Wednesday, October 13, 2004 7:46 PM
To: zz\$All HECO; Reinhardt, Edward; Lee, Warren; Clarke, Bob
Subject: Generation Situation Improves

Attachments: 20041013 End of day 10-13-04.doc

I have some good news. Our peak demand for power this evening was 1,278MW, that's 49MW lower than Tuesday evening's peak load of 1,327MW. Our call for conservation to our commercial and residential customers was successful. As was the hard work of our employees who kept the lights on and did what they could to improve our generating margins.

We're still not out of the woods. The weather forecast for tomorrow calls for the same hot, muggy conditions. We should all continue to spread the word about conservation regardless of the time of year or weather forecast. One idea is to tell your friends and families about the Live Energy Lite event at Ala Moana Center this Saturday between 10am - 4pm.

The attached press release summarizes the day's events.



20041013 End of
day 10-13-04.d...

Jose Dizon, P.E.
Hawaiian Electric Company, Inc.
(808) 543-7753
fax: (808) 543-7790
jose.dizon@heco.com

Hawaiian Electric Company, Inc.
Rate Case - Test Year 2005
W8 and W9 Project Cost - By Months

Acct	Acct Desc	Jan-Mar-04	Apr-04	May-04	Jun-04	Jul-04	Aug-04	Sep-04	Oct-04	Nov-04	Dec-04	Jan-05	Feb-05	Total to Date
W8 Overhaul - P0000521														
512020	Maint Blr & FO Plt	0	53	312	23,346	60,161	205,336	531,403	515,729	451,465	109,777	107,586	1,398	2,006,566
513020	Maint Elec Plt	0	0	0	0	245	93,563	272,057	591,944	258,284	331,129	15,012	6,106	1,568,340
506020	Misc Steam Pwr Exp	0	0	0	0	0	0	344	7,185	0	0	0	0	7,529
Total Waiau 8 OH		0	53	312	23,346	60,406	298,899	803,804	1,114,858	709,749	440,906	122,598	7,504	3,582,435
W9 Major Inspection - P0000937														
553	Maint Blr & FO Plt	0	0	0	0	0	0	0	54,897	262,082	572,611	785,227	442,393	2,117,210
554	Maint Elec Plt	0	0	0	0	0	0	0	0	0	92,328	76,035	0	168,363
Total Waiau 9 Maj Insp		0	0	0	0	0	0	0	54,897	262,082	664,939	861,262	442,393	2,285,573
Total Waiau 8 and Waiau 9		0	53	312	23,346	60,406	298,899	803,804	1,169,755	971,831	1,105,845	983,860	449,897	5,868,008

CA-IR-538

Ref: HEI website News Release dated February 7, 2005 regarding fourth quarter earnings.

According to this document, "The primary reason for the decline in fourth quarter net income was \$10.4 million higher maintenance expenses quarter-over-quarter (\$6.3 million, net of taxes) due to the larger scope and timing of overhauls, repairs and maintenance, including an unscheduled major overhaul of an Oahu generating unit." Please provide the following information:

- a. Identify and describe the "unscheduled major overhaul of an Oahu generating unit" that is

CA-IR-539

- a. Does HECO (or HEI on behalf of HECO) prepare any multi-year long term financial forecasts in the normal course of business?
- b. If affirmative, please provide the following information:
 1. A complete copy of the most recently prepared HECO five-year operations forecast (or equivalent).
 2. A detailed statement of the assumptions employed in the development of documents produced in response to part (1) and the 5-year capital budget that was filed with the Commission on December 30, 2004.
 3. The most detailed available breakdown of electric operating expenses by account block, cost element, department, RA, etc., for each forecasted year.”

HECO Response:

- a. Yes, HECO annually prepares a five-year financing plan.
- b.
 1. See the response to DOD/HECO-IR-3-9 for HECO’s five-year financing plan for 2005-2009.
 2. In addition to capital expenditures, other key assumptions are the sales and peak forecast which can be found at HECO-WP-201, pages 15 and 22, respectively.
 3. See HECO-WP-101 for the requested information for 2005. Differences between the test year estimates and the operating budget are described in the response to CA-IR-14. With respect to years 2006 – 2009, the operating forecast information developed by HECO is described in the response to CA-IR-454.a., and HECO objects to providing such information on the grounds stated in such response.

CA-IR-540

Ref: HEI Form 10-K dated 3/11/2005, page 18 (Contingencies).

According to the 2004 10-K, "Certain factors that may affect future results and financial condition—Other regulatory and permitting contingencies" include "HECO's East Oahu Transmission Project; the lawsuit against The AES Corporation, HECO and HEI; and the Honolulu Harbor environmental investigation." Please provide the following for each of the identified matters:

- a. Does the 2005 test year forecast include any expense accruals or charges related to these "factors"? If so, please provide all such amounts by NARUC account.
- b. Referring to item (a) above, please provide a detailed explanation as to why the identified amounts should be included in the 2005 test year forecast and considered in quantifying overall revenue requirement.
- c. Please provide the amount of any expense accruals or charges recorded in HECO's actual results of operations (by NARUC account) in calendar years 2004 and 2005 related to these "factors."
- d. Does the Company reasonably anticipate that any costs incurred as a result of these actions will be fully covered by existing insurance policies? Please explain and quantify the amount of any expected out of pocket costs.

HECO Response:

- a. There are no expenses related to these "factors" included in the 2005 test year forecast.
- b. Not applicable.
- c. Expense accruals or charges recorded in HECO's actual results of operations for these

"factors" related only to the AES lawsuit and were as follows:

2004:	NARUC 557	\$ 10,412
-------	-----------	-----------

Jan-March 2005:	NARUC 557	(19,962)
-----------------	-----------	----------

- d. Existing insurance policies do not cover the project expenses of the East Oahu Transmission Project or costs related to the lawsuit against The AES Corporation, HECO and HEI.

Currently there are no expected out of pocket costs related to these factors.

The Company is currently working with its general liability insurance providers to determine whether any insurance coverage exists related to the Honolulu Harbor. To date, the Company has not received any indication of coverage from any of the insurers. In view of the complexity of coverage issues at historic release sites, including the exclusions in some of the historic policies covering the Company, the likelihood of any recovery under such policies cannot be quantified at this time.

According to the 2004 10-K, "on July 22, 2004, a contractor (hired by HECO for a utility line extension project to support the expansion of the City and County of Honolulu's wastewater treatment plant) accidentally drilled into a force main sewer line owned by the City and County. The City and County made a formal demand that HECO provide full compensation for damages to the force main sewer line. Management believes HECO has defenses against any assertions that it has liability for the incident as well as insurance coverage (even a deductible)."

Accordingly, HECO responded to the demand asserting its defenses against liability. HECO has increased its general liability reserves to provide for clean-up costs in the event it is found to have responsibility for such costs.” Please provide the following:

normalizing liability claims costs expected on an annual basis.

- c. The information is confidential because this case is not yet settled and will be provided under protective order when a protective order has been issued for this instant docket. The expensed amount was included in NARUC Account 925.02 in 2004. No additional expenses were recorded in 2005.
- d. Yes. Any amount above HECO's deductible is reasonably anticipated to be covered by insurance. The expected out of pocket cost is the amount HECO recorded in 2004 as discussed in c. above.

CA-IR-542

Ref: HEI Form 10-K dated 3/11/2005, page 34 (Affiliates).

According to the 2004 10-K, "all transfers of \$300,000 or more of real property between a public utility and affiliated interests require the prior approval of the PUC and proof that the transfer is in the best interest of the public utility and its customers. If the PUC, in its discretion, determines that an affiliated contract is unreasonable or otherwise contrary to the public interest, the utility must either revise the contract or risk disallowance of the payments for ratemaking purposes." Please provide the following:

- a. Since HECO's last rate case, has HECO transferred \$300,000 or more of real property to an affiliate? If yes, please describe each such transaction.
- b. Referring to item (a) above, please identify and describe the Company's efforts to seek the required regulatory approval(s).

HECO Response:

- a. HECO has not transferred \$300,000 or more of real property to an affiliate since HECO's last rate case.
- b. Not applicable.

CA-IR-543

Ref: HEI Form 10-K dated 3/11/2005, page 34 (Affiliates).

According to the 2004 10-K, "in ratemaking proceedings, a utility must also prove the reasonableness of payments made to affiliated interests under any affiliated contract of \$300,000 or more by clear and convincing evidence." Please provide the following:

- a. Please identify each affiliate to whom HECO actually paid more than \$300,000 under an affiliate contract during the 2004 historical year.
- b. Please identify each affiliate to whom HECO expects to pay more than \$300,000 under an affiliate contract during the 2005 test year forecast.
- c. Referring to items (a) and (b) above, please provide a pinpoint reference to the pages of testimony or related exhibits through which HECO seeks to establish the required reasonableness of the identified payments.

HECO Response:

- a. In 2004, HEI was the only affiliate to whom HECO paid more than \$300,000 under an affiliate contract, which was provided as HECO-1311. The 2004 recorded amounts for HEI billings to HECO were provided on page 20 of HECO's response to CA-IR-6.
- b. In the 2005 test year estimate, HEI is the only affiliate to whom HECO expects to pay more than \$300,000 under an affiliate contract, which was provided as HECO-1311. The 2005 test year estimate for HEI billings to HECO was provided as HECO-1310, and a revised estimate was provided in HECO's response to CA-IR-419.
- c. The requested information was provided in HECO's responses to CA-IR-251 through CA-IR-254 and CA-IR-417 through CA-IR-426.

CA-IR-544

Ref: HECO Response to CA-IR-2, HECO T-6, Attachment 4A, Pages 8 and 9.

These documents are captioned "VIEW: 5-Yr Proj Cost" and "VIEW: 5-Yr Proj Labor Hour" and appear to be an excerpt of certain RA cost and labor hour projections by project for five future years. Please provide the following information:

- a. Confirm that HECO maintains five-year projections of its "project" expenditures for the production department or explain what alternative information is maintained that sets forth long term estimates of project hours and costs.
- b. Provide the most current available detailed copy of five year projected expensed labor hours per project; sorted by project, RA, Activity, Location, and Indicator for each of the future years that have been forecasted by HECO.
- c. Provide the most current available detailed copy of five year projected capitalized labor hours per project; sorted by project, RA, Activity, Location, and Indicator for each of the future years that have been forecasted by HECO.
- d. Provide the most current available detailed copy of five year projected labor expenses per project; sorted by project, RA, Activity, Location, and Indicator for each of the future years that have been forecasted by HECO.

e. Provide the most current available detailed copy of five year projected labor expenses per project; sorted by project, RA, Activity, Location, and Indicator for each of the future years that have been forecasted by HECO.

- a. As part of the Company's budgeting process, five-year cost projections are completed for capital projects. There is no five-year O&M budget, which includes the overhauls. O&M budgets are developed one to two years into the future.
- b. Not applicable.
- c. Please see pages 3 - 26 for detailed, capital labor hours for projected years 2005 – 2009, finalized as part of the budgeting process in January 2005.
- d. Not applicable.
- e. Please see pages 27 - 132 for detailed, capital labor cost for projected years 2005 – 2009, finalized as part of the budgeting process in January 2005.
- f. Not applicable.
- g. Please see pages 133 - 146 for detailed, capital, non-labor cost for projected years 2005 – 2009, finalized as part of the budgeting process in January 2005.
- h. Please see pages 147 - 152 for summary of 2005 capital expenditures by project. Project cost can be reconciled to capital expenditures provided in CA-IR-201, pages 2 – 7.

Due to the voluminous nature of the information, one copy (pages 3-152) will be provided to the Consumer Advocate, the Department of Defense and the Public Utilities Commission under separate transmittal.

CA-IR-545

Ref: HECO Response to CA-IR-2, HECO T-6, Attachment 4A, Pages 4 through 6.

This document is captioned, "PROJECT IDENTIFICATION FORM – INITIALIZE PROJECT" (PIF form) and appears to summarize project cost forecasts, strategic plan linkage, corporate goals and project purposes into a standardized document used to control project expenditures. Please provide the following information:

- a. Confirm and explain the purpose for this form.
- b. Provide complete copies of these forms for each of the unit overhaul projects (see Attachment 4B, page 1) for which the Company is seeking rate case inclusion of expenses.
- c. If the overhaul schedule and test year projected O&M expenses are to be revised by HECO, relative to its initial filing, please also provide the information associated with part (b) for the revised overhaul projects.
- d. Provide complete copies of the PIF forms associated with any other projects for which the Company is seeking rate case inclusion of expenses in excess of \$500,000 (if any).
- e. Regarding the "Strategic Plan Linkage:" field on the PIF form, please provide a complete copy of the Company's most recently prepared "Strategic Plan."

HECO Response:

- a. The purpose of the Project Identification Form (PIF) – Initialize Project is to provide management with sufficient information to approve the project for inclusion in the capital expenditures forecast/update. The PIF is also used to authorize projects when the Company is ready to commit and/or spend funds.
- b. Please refer to page 5 for the list of overhaul projects for which the Company is seeking rate case inclusion of expenses. Copies of the project PIFs are included on pages 6 to 46 with the following breakdown by unit:-
 - Kahe 2 Overhaul – pages 6 to 10
 - Kahe 6 Overhaul – pages 11 to 16
 - Kahe 4 Overhaul – pages 17 to 22

- Kahe 1 Overhaul – pages 23 to 28
 - Waiau 4 Overhaul – pages 29 to 34
 - Waiau 9 Major Inspection – pages 35 to 40
 - Waiau 10 Major Inspection – pages 41 to 46
- c. Please refer to CA-IR-499 for comments regarding revisions to the overhaul projected O&M expenses.
- d. Please see pages 47 to 57 for the HECO 2005 TY Rate Case and the Kahe Pond 1A Cleaning PIFs where expenses are in excess of \$500,000 in the 2005 test year.
- e. The “Strategic Plan Linkage” on the PIF is a drop down menu comprised of 15 items that provides management with a quick reference to the corporate strategies and goals. The most recent “Strategic Plan” is a document entitled Corporate Strategies and Goals dated April 2002 for HECO-MECO-HELCO. HECO would generally object to providing some parts of this document even pursuant to a protective order on the grounds that the document contains confidential, proprietary information, and on public policy grounds, since the document is solely intended to be an internal management tool, and a requirement that such documents be disclosed to external parties would diminish their value as internal management tools. However, without waiving any objections, a copy of the entire document is attached to this response as Attachment 1 pursuant to Protective Order No. 21859.

The components that make up the list of “Strategic Plan Linkage” are provided below along with a description of each item in the plan:

1. Integrated Offerings and Technology Innovation – Offer customers integrated energy solutions, including central station power, distributed generation, renewable alternatives, energy efficiencies, rate options, and energy services, to meet customer

needs and remain the energy provider of choice while supporting the objectives of energy self-sufficiency and reducing Hawaii's reliance on fossil fuels.

2. Major Capital Projects and Facilities – Complete major capital projects on time and on budget.
3. Environmental Citizenship – Comply with environmental regulatory requirements and support Federal and State of Hawaii energy policy goals.
4. Continuous Improvement – Achieve financial results to earn a fair return for our shareholders by managing revenues, expenses and capital spending, optimizing and streamlining core operations by leveraging key synergies, and adopting and integrating effective technologies and systems.
5. Reliability – Provide reliable power to all customers while maintaining reasonable system costs.
6. Safety, Security and Facilities – Prevent injury in all facets of Company operations and provide protection of personnel and equipment and Company property, with the primary objectives of avoidance of harm and continuation of critical services.
7. Power Quality – Offer enhanced power service to meet the special needs of customers.
8. Increase Electric Sales – Promote electric service in new construction and customer electricity consumption in integrated offerings.
9. Competitive Business Culture – Create a corporate culture that embraces managed risk, excellence, innovation, proactive and strategic thinking, transparency, and future orientation while providing challenging opportunities for individual development.
10. Build External Relations – Engage in personal and direct relationships with customers, government, and the community that foster mutual understanding, pursuit of joint goals,

societal benefits, educational opportunities, and customer satisfaction.

11. Expand Bus Offering & Alliances – Execute new ventures that promote revenue growth, operational efficiencies, and optimum diversification.
12. Price it Right – Strategic focus area to provide good value for our customers, be competitive for a better future, and earn a fair return for our shareholders.
13. Keep the Lights On – Strategic focus area to provide energy when the customers want it, and to provide great service to our customers.
14. Be the Winning Team – Strategic focus area to know the business, embrace change, and develop a desire to be the best.
15. Grow the Business – Strategic focus area to expand our core business and acquire or develop new business.

Hawaiian Electric Company Inc.
2005 TEST YEAR
2005 O&M Overhaul Project
1/12/04 Planned Maintenance Schedule

<u>Project #</u>	<u>Project Description</u>	<u>Proj Ident</u>		<u>Proj Ident Cost</u>		<u>1/12/04 Sched</u>	<u>Diff</u>
		<u>Date</u>	<u>2004</u>	<u>2005</u>	<u>Total</u>	<u>2005 Test Yr</u>	<u>2005 Cost</u>
P0000650	Kahe 2 Overhaul (2004)	Dec-03	2,011,000	490,000	2,501,000	481,500	8,500
P0000844	Kahe 6 Overhaul (2005)	Apr-03	0	2,405,000	2,405,000	2,890,828	(485,828)
P0000845	Kahe 4 Overhaul (2005)	Apr-03	0	3,145,000	3,145,000	3,549,686	(404,686)

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Project Title: Kahe 2 Overhaul (2004)

Plant Addition Date: -

Project Number: P0000650
(Permanent)

Commitment Date: -

Primary Corporate Goal: EAF

Strategic Plan Linkage: Reliability
(Primary)

Impact on Goal: Medium

Project Forecast (Thousand \$)							
<i>(Attach the "View - 5-Yr Proj Costs by Ind & Cost Cat" report obtained from the estimators' Pillar file.)</i>							
<u>Prior Years</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>Future Years</u>	<u>Total</u>
\$0	\$0	\$0	\$2,011	\$490	\$0	\$0	\$2,501

Assessment Factors					
<u>Compliance</u>	<u>Competitive Advantage</u>	<u>Financial Impact</u>	<u>Reliability</u>	<u>Corporate Image</u>	<u>Total Score</u>
45	15	0	33	0	93

Purpose/Objectives:

This overhaul falls into the Must Do category based on the required boiler inspection interval of 3 years.

Scope Description:

This overhaul includes the following work:

- Turbine LP overhaul and boresonic inspection.
- Turbine throttle valves, governor valves, reheat stop valves, intercept valves servicing.
- Preventive maintenance (routine maintenance) on boiler/turbine/auxiliary equipment.
- Circulating water tunnel inspection/cleaning.
- Boiler BRULs/HIEL on critical boiler components.
- Boiler chemical cleaning.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Resource Needs:

Power supply O&M travel crews, Planning & Engineering engineers, substation personnel, contract helpers, and vendor services and parts. Station maintenance personnel may supplement the travel crews as required.

Justification:

An internal boiler inspection is required every 3 years per State permit. The last boiler inspection was performed in July 2001, and its permit will expire on July 31, 2004. Prior to the boiler expiration date, a one week unit outage to perform the boiler inspection is scheduled for March 2004. Preventive maintenance activities will be performed during the overhaul to maintain generating unit reliability. These activities include, greasing of mechanical equipment components; servicing and calibration of level, pressure, temperature instrumentation; inspection/cleaning of the circulating water inlet tunnels; servicing of boiler safety valves and pressure vessel relief valves, boiler and air heater washes.

Corrective maintenance activities will be performed to restore equipment to satisfactory condition and improve generating unit efficiency. These activities include repairs to leaking valves, replacing air heater baskets, corrosion control. Boiler refractory, insulation repairs, expansion joint repairs will be addressed during the overhaul to mitigate unplanned unit forced outages due to boiler casing leaks.

Predictive maintenance activities completed prior to the overhaul will determine repair plans performed during the overhaul. Condition assessment will identify motor repairs, pump overhauls, electrical cable replacements. Predictive maintenance activities performed during the overhaul will determine equipment repairs performed during the overhaul and supports justification for future work. These activities will include non-destructive testing of heat exchanger tubes, BRULs and HiEL assessments for boiler pressure parts.

Issues, Impacts, Considerations:

The impact of not doing this overhaul will negatively impact EAF, generating unit reliability, and generating unit heat rate. The BRULs and HiEL assessments are critical to monitoring and correcting critical boiler components operating under high temperatures and pressures. If not addressed during the overhaul, prolonged repairs could lead to more extensive damage, therefore, contributing to increased repair costs and the inability to manage future O&M expenditures.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Contributions:

Contributions in aid of construction (CIAC):

- In Kind

- In Cash

Cash Advance

Cost Sharing
(under HECO Policy UG Lines, October
2000)

Other type of payment (cash, non-cash) by outside party

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

PUC Approved: ☐ Approval Required ☒ Not Required

☐ Approved, Date of Decision & Order: - - Docket Number:

☐ Awaiting PUC Approval, Application Filed - -

Authorization for: ☐ Engineering ☐ Materials ☐ Construction

Approval Option: Authorize expenditures that are budgeted \$2,402,654

Submitted by: Karen M. Mark Phone/Ext #: 4237

Originator's Name: Karen Mark

Responsible Estimator: Karen Mark
(Pillar UserID)

Resp. Estimator Dept: Power Supply O&M
(Pillar Department Folder)

Project Manager: Larry Ornellas

Date: 12/17/2003

Required Approvals to Authorize a Project:

[Signature] 12/22/03
Responsible Manager Date
[Signature] 12/22/03

Responsible Vice President Date
(not required for budgeted projects \$1 million and less)

VP, Government and Community Affairs Date

3:36PM

» budget manager: *VIEW: 5-Yr Proj Cost by l...

12/17/2003

*Project #	*Ind #	Cost Categ...	Total 5 Year Cost	FY03	FY04	FY05	FY06	FY07
P0000650	-	MATERIAL	\$87,809.70	\$0.00	\$87,809.70	\$0.00	\$0.00	\$0.00
P0000650	-	OVERHEADS	\$484,077.95	\$0.00	\$484,077.95	\$0.00	\$0.00	\$0.00
P0000650	-		\$571,887.65	\$0.00	\$571,887.65	\$0.00	\$0.00	\$0.00
P0000650	NE	LABOR	\$598,816.80	\$0.00	\$598,816.80	\$0.00	\$0.00	\$0.00
P0000650	NE	MATERIAL	\$676,500.00	\$0.00	\$676,500.00	\$0.00	\$0.00	\$0.00
P0000650	NE	O/S SVCS	\$653,500.00	\$0.00	\$163,375.00	\$490,125.00	\$0.00	\$0.00
P0000650	NE		\$1,928,816.80	\$0.00	\$1,438,691.80	\$490,125.00	\$0.00	\$0.00
P0000650			\$2,500,704.45	\$0.00	\$2,010,579.45	\$490,125.00	\$0.00	\$0.00
			\$2,500,704.45	\$0.00	\$2,010,579.45	\$490,125.00	\$0.00	\$0.00

Upd03PNED-Sep03-RKiyabu,PLN

Page 1

Version: Sep03

PROJECT IDENTIFICATION FORM - INITIALIZE PROJECT

The Project identified below has not been established in MIMS

Project Title: Kahe 6 Overhaul (2005)

Plant Addition Date: -

Project Number: LORNELLA15_
(Temporary)

Commitment Date: -

Primary Corporate Goal: EAF

Strategic Plan Linkage: Reliability
(Primary)

Impact on Goal: Medium

Project Forecast (Thousand \$)

(Attach the "View - 5-Yr Proj Costs by Ind & Cost Cat" report obtained from the estimators' Pillar file.)

<u>Prior Years</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>Future Years</u>	<u>Total</u>
\$0	\$0	\$0	\$2,405	\$0	\$0	\$0	\$2,405

Assessment Factors

<u>Compliance</u>	<u>Competitive Advantage</u>	<u>Financial Impact</u>	<u>Reliability</u>	<u>Corporate Image</u>	<u>Total Score</u>
45	15	0	33	0	93

Purpose/Objectives:

This overhaul falls into the MUST DO category based on the required boiler inspection interval of 3 years.

ACCOUNTING

7 2003

Scope Description:

This overhaul includes the following work:

- Preventive maintenance performed on generating unit mechanical, electrical, and control equipment
- BRULS and HIELS on critical boiler components
- Equipment inspection and non-destructive testing of equipment to determine repairs required for continued service life
- Preventive maintenance performed on main and auxiliary transformers
- Circulating water tunnel cleaning
- Mechanical and electrical equipment repairs based on predictive maintenance technology and assessment
- Boiler stack inspection and repairs
- Backlog work repairs on equipment requiring the generating unit to be shutdown and/or for safety reasons

PROJECT IDENTIFICATION FORM - INITIALIZE PROJECT

The Project identified below has not been established in MIMS

Resource Needs:

Power Supply O&M Travel Crews, Power Supply Engineers, contract helpers, vendor services and equipment material/parts. Station maintenance may supplement the Travel Crew if required.

Justification:

An internal boiler inspection is required every three years per state permit. Preventive maintenance activities will be performed to maintain generating unit reliability. These activities include, greasing of mechanical equipment components; servicing and calibration of level, pressure, temperature, instrumentation; inspection/cleaning of the circulating water tunnels; servicing of boiler safety valves, pressure vessel relief valves, inspection and servicing of electrical switchgear and motor control center components; servicing of the main and auxiliary transformers.

Corrective maintenance activities will be performed to restore equipment to satisfactory condition and improve generating unit efficiency. These activities include repairs to leaking valves, corrosion control, boiler refractory and insulation repairs.

Predictive maintenance activities completed prior to the overhaul will determine repair plans performed during the overhaul. Resulting repairs to include, motor bearing replacements, replacement of lubricating oil for rotating equipment, motor cleaning and refurbishment, electrical cables replacement. Predictive maintenance activities performed during the overhaul identify repairs requiring immediate attention and support justification for future work. These activities include eddy current testing of heat exchangers, BRULs and HiEL assessments of various boiler and piping pressure components.

Issues, Impacts, Considerations:

The impact of not doing this overhaul negatively impacts EAF, generating unit reliability and heatrate. Equipment repairs not addressed during this overhaul could lead to more extensive equipment damage, result in repairs to adjacent equipment, to contribute to increased repair costs and the inability to manage future O&M expenditures.

PROJECT IDENTIFICATION FORM - INITIALIZE PROJECT

The Project identified below has not been established in MIMS

Contributions:

Contributions in aid of construction (CIAC):

- In Kind

- In Cash

Cash Advance

Cost Sharing
(under HECO Policy UG Lines, October
2000)

Other type of payment (cash, non-cash) by outside party

PROJECT IDENTIFICATION FORM - INITIALIZE PROJECT

The Project identified below has not been established in MIMS

PUC Approved: ☐ Approval Required ☒ Not Required

☐ Approved, Date of Decision & Order: - - Docket Number:

☐ Awaiting PUC Approval, Application Filed - -

Authorization for: ☐ Engineering ☐ Materials ☐ Construction

Approval Option: Initialize project

Submitted by: _____ Phone/Ext #: _____

KE⁷ Originator's Name: Karen Mark

Responsible Estimator: Karen Mark
(Pillar UserID)

Resp. Estimator Dept: Power Supply O&M
(Pillar Department Folder)

Project Manager: Larry Ornellas

Date: 04/25/2003

Required Approvals to Initialize a Project:

ya  4/28/03
Responsible Manager Date

Thomas C. Simon 4/29/03
Responsible Vice President Date

4/25/2003 PIF approval rpt 4-28-03 3:12PM

*Project #	*Loc #	*Ind #	Cost Categ...	Total 5 Year Cost	FY03	FY04	FY05	FY06	FY07
LOmella15_	-	-	MATERIAL	\$130,841.55	\$0.00	\$0.00	\$130,841.55	\$0.00	\$0.00
LOmella15_	-	-	OVERHEADS	\$449,545.30	\$0.00	\$0.00	\$449,545.30	\$0.00	\$0.00
LOmella15_	-	-		\$580,386.85	\$0.00	\$0.00	\$580,386.85	\$0.00	\$0.00
LOmella15_	K06	NE	LABOR	\$574,784.40	\$0.00	\$0.00	\$574,784.40	\$0.00	\$0.00
LOmella15_	K06	NE	MATERIAL	\$766,500.00	\$0.00	\$0.00	\$766,500.00	\$0.00	\$0.00
LOmella15_	K06	NE	O/S SVCS	\$483,500.00	\$0.00	\$0.00	\$483,500.00	\$0.00	\$0.00
LOmella15_	K06	NE		\$1,824,784.40	\$0.00	\$0.00	\$1,824,784.40	\$0.00	\$0.00
LOmella15_				\$2,405,171.25	\$0.00	\$0.00	\$2,405,171.25	\$0.00	\$0.00

Version: Mar03

Page 1

Upd03PNED-Mar03-LOmella.PLN

PRODUCTION CHANGE REQUEST (PCR) FORM

District: P-HECO

Temporary Project Number: LORNELLA15_
Project Number: P0000844

Project Title: (28 characters) Kahe 6 Overhaul (2005)
Short Project Title: (10 characters) K6 2005 OH

Originator Employee's Number: 9700
Person Assigned To: Larry Ornellas
Person Assigned to Employee Number: 21110

Responsibility Area: PIT
Activity: 257
Location: * K06
Indicator: *ky* NE
Apply AFUDC (yes or no): *ky* No

Existing Grandparent Project Number:
or
New Grandparent Project Description:
Pillar Temporary Projects
or 5th Segment Projects to link
to Grandparent Project above:

Plant Addition Date:
Plant Functional Category: Steam Production
Project or Program: Project-No AFUDC

For Admin use only:

Date updated MIMS Prod files: 5/6/03-*ky*

Copy given to Pillar Admin: _____

AP-1

Date: 04/30/2003

PROJECT IDENTIFICATION FORM - INITIALIZE PROJECT

The Project identified below has not been established in MIMS

Project Title: Kahe 4 Overhaul (2005)

Plant Addition Date: -

Project Number: LORNELLA16
(Temporary) (P0000845)

Commitment Date: -

Primary Corporate Goal: EAF

Strategic Plan Linkage: Reliability
(Primary)

Impact on Goal: Medium

4/03

Project Forecast (Thousand \$)

(Attach the "View - 5-Yr Proj Costs by Ind & Cost Cat" report obtained from the estimators' Pillar file.)

<u>Prior Years</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>Future Years</u>	<u>Total</u>
\$0	\$0	\$0	\$3,145	\$0	\$0	\$0	\$3,145

Assessment Factors

<u>Compliance</u>	<u>Competitive Advantage</u>	<u>Financial Impact</u>	<u>Reliability</u>	<u>Corporate Image</u>	<u>Total Score</u>
45	15	0	33	0	93

Purpose/Objectives:

This overhaul falls into the MUST DO category based on the required boiler inspection interval of 3 years.

Scope Description:

This overhaul includes the following work:

- Preventive maintenance performed on generating unit mechanical, electrical, and control equipment
- BRULS and HIELS on critical boiler components
- Equipment inspection and non-destructive testing of equipment to determine repairs required for continued service life
- Preventive maintenance performed on main and auxiliary transformers
- Circulating water tunnel cleaning
- Mechanical and electrical equipment repairs based on predictive maintenance technology and assessment
- Boiler stack inspection and repairs
- Backlog work repairs on equipment requiring the generating unit to be shutdown and/or for safety reasons

PROJECT IDENTIFICATION FORM - INITIALIZE PROJECT

The Project identified below has not been established in MIMS

Resource Needs:

Power Supply O&M Travel Crews, Power Supply Engineers, contract helpers, vendor services, equipment material/parts. Station maintenance may supplement the Travel Crew if required.

Justification:

An internal boiler inspection is required every three years per state permit. Preventive maintenance activities will be performed to maintain generating unit reliability. These activities include, greasing of mechanical equipment components; servicing and calibration of level, pressure, temperature, instrumentation; inspection/cleaning of the circulating water tunnels; servicing of boiler safety valves, pressure vessel relief valves; inspection and servicing of electrical switchgear and motor control center components; servicing of the main and auxiliary transformers.

Corrective maintenance activities will be performed to restore equipment to satisfactory condition and improve generating unit efficiency. These activities include repairs to leaking valves, corrosion control, boiler refractory and insulation repairs.

Predictive maintenance activities completed prior to the overhaul will determine repair plans performed during the overhaul. Resulting repairs to include, motor bearing replacements, replacement of lubricating oil for rotating equipment, motor cleaning and refurbishment, electrical cables replacement. Predictive maintenance activities performed during the overhaul identify repairs requiring immediate attention and support justification for future work. These activities include eddy current testing of heat exchangers, BRULs and HiEL assessments of various boiler and piping pressure components.

Issues, Impacts, Considerations:

The impact of not doing this overhaul negatively impacts EAF, generating unit reliability, and heat rate. Equipment repairs not addressed during this overhaul could lead to more extensive equipment damage, result in additional repairs to adjacent equipment, to contribute to increased repair costs and the inability to manage future O&M expenditures.

PROJECT IDENTIFICATION FORM - INITIALIZE PROJECT

The Project identified below has not been established in MIMS

Contributions:

Contributions in aid of construction (CIAC):

- In Kind

- In Cash

Cash Advance

Cost Sharing
(under HECO Policy UG Lines, October
2000)

Other type of payment (cash, non-cash) by outside party

PROJECT IDENTIFICATION FORM - INITIALIZE PROJECT

The Project identified below has not been established in MIMS

PUC Approved: ☐ Approval Required ☒ Not Required

☐ Approved, Date of Decision & Order: - - Docket Number:

☐ Awaiting PUC Approval, Application Filed - -

Authorization for: ☐ Engineering ☐ Materials ☐ Construction

Approval Option: Initialize project

Submitted by: _____ Phone/Ext #: _____

PM Originator's Name: Karen Mark

Responsible Estimator: Karen Mark

Resp. Estimator Dept: Power Supply O&M

PM Project Manager: Larry Ornellas

Date: 04/25/2003

Required Approvals to Initialize a Project:

[Signature] 4/28/03
Responsible Manager Date

Thomas C. Simmons 4/29/03
Responsible Vice President Date

3:12PM

PIF approval rpt 4-28-03

4/25/2003

*Project #	*Loc #	*Ind #	Cost Categ...	Total 5 Year Cost	FY03	FY04	FY05	FY06	FY07
LOrnelia16_	-	-	MATERIAL	\$88,678.65	\$0.00	\$0.00	\$88,678.65	\$0.00	\$0.00
LOrnelia16_	-	-	OVERHEADS	\$929,583.10	\$0.00	\$0.00	\$929,583.10	\$0.00	\$0.00
LOrnelia16_	-	-		\$1,018,261.75	\$0.00	\$0.00	\$1,018,261.75	\$0.00	\$0.00
LOrnelia16_	K04	NE	LABOR	\$1,199,404.80	\$0.00	\$0.00	\$1,199,404.80	\$0.00	\$0.00
LOrnelia16_	K04	NE	MATERIAL	\$519,500.00	\$0.00	\$0.00	\$519,500.00	\$0.00	\$0.00
LOrnelia16_	K04	NE	O/S SVCS	\$407,500.00	\$0.00	\$0.00	\$407,500.00	\$0.00	\$0.00
LOrnelia16_	K04	NE		\$2,126,404.80	\$0.00	\$0.00	\$2,126,404.80	\$0.00	\$0.00
LOrnelia16_				\$3,144,666.55	\$0.00	\$0.00	\$3,144,666.55	\$0.00	\$0.00

Version: Mar03

Page 2

Upd03PNED-Mar03-LOrnelia.PLN

PRODUCTION CHANGE REQUEST (PCR) FORM

District: P-HECO

Temporary Project Number: LORNELLA16_
Project Number: P0000845

Project Title: (28 characters) Kahe 4 Overhaul (2005)

Short Project Title: (10 characters) K4 2005 OH

Originator Employee's Number: 9700

Person Assigned To: Larry Ornellas

Person Assigned to Employee Number: 21110

Responsibility Area: PIT

Activity: 257

Location: K04

Indicator: *ry* NE

Apply AFUDC (yes or no): *ry* No

Existing Grandparent Project Number:
or
New Grandparent Project Description:

Pillar Temporary Projects
or 5th Segment Projects to link
to Grandparent Project above:

Plant Addition Date: -

Plant Functional Category: Steam Production

Project or Program: Project-No AFUDC

For Admin use only:

Date updated MIMS Prod files: 5/6/03-ry

Copy given to Pillar Admin: _____

AP-1

Date: 04/30/2003

PROJECT IDENTIFICATION FORM - INITIALIZE PROJECT

The Project identified below has not been established in MIMS

Project Title: Kahe 1 Overhaul (2005)

Plant Addition Date: -

Project Number: LORNELLA17_
(Temporary)

Commitment Date: -

Strategic Plan Linkage: Reliability
(Primary)

Primary Corporate Goal: EAF

Impact on Goal: Medium

Project Forecast (Thousand \$)

(Attach the "View - 5-Yr Pmi Costs by Ind & Cost Cat" report obtained from the Estimators' Pillar file.)

PROJECT IDENTIFICATION FORM - INITIALIZE PROJECT

The Project identified below has not been established in MIMS

Resource Needs:

Power Supply O&M Travel Crews, Power Supply Engineers, contract helpers, vendor services, equipment material/parts. Station maintenance may supplement the Travel Crew if required.

Justification:

An internal boiler inspection is required every three years per state permit. Preventive maintenance activities will be performed to maintain generating unit reliability. These activities include, greasing of mechanical equipment components; servicing and calibration of level, pressure, temperature, instrumentation; inspection/cleaning of the circulating water tunnels; servicing of boiler safety valves, pressure vessel relief valves; inspection and servicing of electrical switchgear and motor control center components; servicing of the main and auxiliary transformers.

Corrective maintenance activities will be performed to restore equipment to satisfactory condition and improve generating unit efficiency. These activities include repairs to leaking valves, corrosion control, boiler refractory and insulation repairs.

Predictive maintenance activities completed prior to the overhaul will determine repair plans performed during the overhaul. Resulting repairs to include, motor bearing replacements, replacement of lubricating oil for rotating equipment, motor cleaning and refurbishment, electrical cables replacement. Predictive maintenance activities performed during the overhaul identify repairs requiring immediate attention and support justification for future work. These activities include eddy current testing of heat exchangers, BRULs and HiEL assessments of various boiler and piping pressure components.

Issues, Impacts, Considerations:

The impact of not doing this overhaul negatively impacts EAF, generating unit reliability, and heat rate. Equipment repairs not addressed during this overhaul could lead to more extensive equipment damage, result in additional repairs to adjacent equipment, to contribute to increased repair costs and the inability to manage future O&M expenditures.

PROJECT IDENTIFICATION FORM - INITIALIZE PROJECT

The Project identified below has not been established in MIMS

Contributions:

Contributions in aid of construction (CIAC):

- In Kind

- In Cash

Cash Advance

Cost Sharing
(under HECO Policy UG Lines, October
2000)

Other type of payment (cash, non-cash) by outside party

PROJECT IDENTIFICATION FORM - INITIALIZE PROJECT

The Project identified below has not been established in MIMS

PUC Approved: ☐ Approval Required ☒ Not Required

☐ Approved, Date of Decision & Order: - - Docket Number:

☐ Awaiting PUC Approval, Application Filed - -

Authorization for: ☐ Engineering ☐ Materials ☐ Construction

Approval Option: Initialize project

Submitted by: _____ Phone/Ext #: _____

KM Originator's Name: Karen Mark

Responsible Estimator: Karen Mark
(Pillar UserID)

Resp. Estimator Dept: Power Supply O&M
(Pillar Department Folder)

JO Project Manager: Larry Ornellas

Date: 04/25/2003

Required Approvals to Initialize a Project:

Robert K. Lynch *4/28/03*
Responsible Manager Date

Thomas C. Simon *4/29/03*
Responsible Vice President Date

3:12PM

PIF approval rpt 4-28-03

4/25/2003

*Project #	*Loc #	*Ind #	Cost Categ...	Total 5 Year Cost	FY03	FY04	FY05	FY06	FY07
LOrnella17_	-	-	MATERIAL	\$77,071.05	\$0.00	\$0.00	\$77,071.05	\$0.00	\$0.00
LOrnella17_	-	-	OVERHEADS	\$409,770.78	\$0.00	\$0.00	\$409,770.78	\$0.00	\$0.00
LOrnella17_	-	-		\$486,841.83	\$0.00	\$0.00	\$486,841.83	\$0.00	\$0.00
LOrnella17_	K01	NE	LABOR	\$528,943.38	\$0.00	\$0.00	\$528,943.38	\$0.00	\$0.00
LOrnella17_	K01	NE	MATERIAL	\$451,500.00	\$0.00	\$0.00	\$451,500.00	\$0.00	\$0.00
LOrnella17_	K01	NE	O/S SVCS	\$371,500.00	\$0.00	\$0.00	\$371,500.00	\$0.00	\$0.00
LOrnella17_	K01	NE		\$1,351,943.38	\$0.00	\$0.00	\$1,351,943.38	\$0.00	\$0.00
LOrnella17_				\$1,838,785.21	\$0.00	\$0.00	\$1,838,785.21	\$0.00	\$0.00

Version: Mar03

Page 3

Upd03PNED-Mar03-LOrnella.PLN

PRODUCTION CHANGE REQUEST (PCR) FORM

District: P-HECO

Temporary Project Number: LORNELLA17_

Project Number: P0000846

Project Title: (28 characters) Kahe 1 Overhaul (2005)

Short Project Title: (10 characters) K1 2005 OH

Originator Employee's Number: 9700

Person Assigned To: Larry Ornellas

Person Assigned to Employee Number: 21110

Responsibility Area: PIT

Activity: 257

Location: K01

Indicator: *kyf* NE

Apply AFUDC (yes or no): *kyf* No

Existing Grandparent Project Number:

or

New Grandparent Project Description:

Pillar Temporary Projects
or 5th Segment Projects to link
to Grandparent Project above:

Plant Addition Date: -

Plant Functional Category: Steam Production

Project or Program: Project-No AFUDC

For Admin use only:

Date updated MIMS Prod files: 5/6/03-*kyf*

Copy given to Pillar Admin: _____

AP-I

Date: 04/30/2003

PROJECT IDENTIFICATION FORM - INITIALIZE PROJECT

The Project identified below has not been established in MIMS

Project Title: Waiiau 4 Overhaul (2005)

Plant Addition Date: -

Project Number: LORNELLA18_

Commitment Date: -

(Temporary) (P0000841)

Primary Corporate Goal: EAF

Strategic Plan Linkage: Reliability
(Primary)

Impact on Goal: Medium

4/03

Project Forecast (Thousand \$)

(Attach the "View - 5-Yr Proj Costs by Ind & Cost Cat" report obtained from the estimators' Pillar file.)

<u>Prior</u> <u>Years</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>Future</u> <u>Years</u>	<u>Total</u>
\$0	\$0	\$0	\$3,356	\$0	\$0	\$0	\$3,356

Assessment Factors

<u>Compliance</u>	<u>Competitive</u> <u>Advantage</u>	<u>Financial</u> <u>Impact</u>	<u>Reliability</u>	<u>Corporate</u> <u>Image</u>	<u>Total</u> <u>Score</u>
45	15	0	33	0	93

Purpose/Objectives:

This overhaul falls into the MUST DO category based on the required boiler inspection interval of 3 years.

ACCOUNTING
7 2003

Scope Description:

This overhaul includes the following work:

- Preventive maintenance performed on generating unit mechanical, electrical, and control equipment
- Preventive maintenance performed on turbine and generator, and non-destructive testing of the rotor bores, and generator retaining rings
- BRULS and HIELS on critical boiler components
- Equipment inspection and non-destructive testing of equipment to determine repairs required for continued service life
- Preventive maintenance performed on main and auxiliary transformers
- Circulating water tunnel cleaning
- Mechanical and electrical equipment repairs based on predictive maintenance technology and assessment

PROJECT IDENTIFICATION FORM - INITIALIZE PROJECT

The Project identified below has not been established in MIMS

Resource Needs:

Power Supply O&M Travel Crews, Power Supply Engineers, contract helpers, vendor services, equipment material/parts. Station maintenance may supplement the Travel Crew if required.

Justification:

An internal boiler inspection is required every three years per state permit. Preventive maintenance activities will be performed to maintain generating unit reliability. These activities include, greasing of mechanical equipment components; servicing and calibration of level, pressure, temperature, instrumentation; inspection/cleaning of the circulating water tunnels; servicing of boiler safety valves, pressure vessel relief valves; inspection and servicing of electrical switchgear and motor control center components; servicing of the main and auxiliary transformers; servicing of the turbine components and valves.

Corrective maintenance activities will be performed to restore equipment to satisfactory condition and improve generating unit efficiency. These activities include repairs to leaking valves, corrosion control, boiler refractory and insulation repairs.

Predictive maintenance activities completed prior to the overhaul will determine repair plans performed during the overhaul. Resulting repairs to include, motor bearing replacements, replacement of lubricating oil for rotating equipment, motor cleaning and refurbishment, electrical cables replacement. Predictive maintenance activities performed during the overhaul identify repairs requiring immediate attention and support justification for future work. These activities include, HP turbine, LP turbine, and generator rotor bore inspections; non-destructive testing of the turbine rotor and blades, non-destructive testing of the generator retaining rings and rotor/stator components; eddy current testing of heat exchangers, BRULs and HiEL assessments of various boiler and piping pressure components.

Issues, Impacts, Considerations:

The impact of not doing this overhaul negatively impacts EAF, generating unit reliability, and heat rate. Equipment repairs not addressed during this overhaul could lead to more extensive equipment damage, result in additional repairs to adjacent equipment, to contribute to increased repair costs and the inability to manage future O&M expenditures.

PROJECT IDENTIFICATION FORM

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

The Project identified below has not been established in MIMS

Contributions:

Contributions in aid of construction (CIAC):

- In Kind

- In Cash

Cash Advance

PROJECT IDENTIFICATION FORM - INITIALIZE PROJECT

The Project identified below has not been established in MIMS

PUC Approved: ☐ Approval Required ☒ Not Required

☐ Approved, Date of Decision & Order: - - Docket Number:

☐ Awaiting PUC Approval, Application Filed - -

Authorization for: ☐ Engineering ☐ Materials ☐ Construction

Approval Option: Initialize project

Submitted by: _____ Phone/Ext #: _____

Originator's Name: Karen Mark

Responsible Estimator: Karen Mark
(Pillar UserID)

Resp. Estimator Dept: Power Supply O&M
(Pillar Department Folder)

Project Manager: Larry Ornellas

Date: 04/25/2003

Required Approvals to Initialize a Project:

Ramona H. Johnson 4/28/03
Responsible Manager Date

Thomas C. Simon 4/29/03
Responsible Vice President Date

4/25/2003 PIF approval rpt 4-28-03 3:12PM

*Project #	*Loc #	*Ind #	Cost Categ...	Total 5 Year Cost	FY03	FY04	FY05	FY06	FY07
LOrnella18_	-	-	MATERIAL	\$100,405.74	\$0.00	\$0.00	\$100,405.74	\$0.00	\$0.00
LOrnella18_	-	-	OVERHEADS	\$568,078.56	\$0.00	\$0.00	\$568,078.56	\$0.00	\$0.00
LOrnella18_	-	-		\$688,484.30	\$0.00	\$0.00	\$688,484.30	\$0.00	\$0.00
LOrnella18_	W04	NE	LABOR	\$732,969.60	\$0.00	\$0.00	\$732,969.60	\$0.00	\$0.00
LOrnella18_	W04	NE	MATERIAL	\$588,200.00	\$0.00	\$0.00	\$588,200.00	\$0.00	\$0.00
LOrnella18_	W04	NE	O/S SVCS	\$1,386,000.00	\$0.00	\$0.00	\$1,386,000.00	\$0.00	\$0.00
LOrnella18_	W04	NE		\$2,687,169.60	\$0.00	\$0.00	\$2,687,169.60	\$0.00	\$0.00
LOrnella18_				\$3,355,653.90	\$0.00	\$0.00	\$3,355,653.90	\$0.00	\$0.00

Version: Mar03

Page 4

Upd03PNED-Mar03-LOrnella.PLN

PRODUCTION CHANGE REQUEST (PCR) FORM

District: P-HECO

Temporary Project Number: LORNELLA18_

Project Number: P0000847

Project Title: (28 characters) Waiau 4 Overhaul (2005)

Short Project Title: (10 characters) W4 2005 OH

Originator Employee's Number: 9700

Person Assigned To: Larry Ornellas

Person Assigned to Employee Number: 21110

Responsibility Area: PIT

Activity: 257

Location: W04

Indicator: *xy* NE

Apply AFUDC (yes or no): *xy* No

Existing Grandparent Project Number:
or
New Grandparent Project Description:

Pillar Temporary Projects
or 5th Segment Projects to link
to Grandparent Project above:

Plant Addition Date: -

Plant Functional Category: Steam Production

Project or Program: Project-No AFUDC

For Admin use only:

Date updated MIMS Prod files: 5/6/03-*xy*

Copy given to Pillar Admin: _____

AP-1

Date: 04/30/2003

The Project identified below has not been established in MIMS

Project Title: W9 Major Inspection

Plant Addition Date: -

Project Number: RKIYABU08
(Temporary)

Commitment Date: -

Primary Corporate Goal: EAF

Strategic Plan Linkage: Reliability
(Primary)

Impact on Goal: Medium

Project Forecast (Thousand \$)

(Attach the "View - 5-Yr Proj Costs by Ind & Cost Cat" report obtained from the estimators' Pillar file.)

<u>Prior Years</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>Future Years</u>	<u>Total</u>
\$0	\$913	\$0	\$0	\$0	\$0	\$0	\$913

Assessment Factors

<u>Compliance</u>	<u>Competitive Advantage</u>	<u>Financial Impact</u>	<u>Reliability</u>	<u>Corporate Image</u>	<u>Total Score</u>
0	15	0	33	0	48

Purpose/Objectives:

Combustion Turbine (CT-9) major inspection will ensure continued reliable starting of the unit and prevent premature failure of its major components.

PROJECT IDENTIFICATION FORM - INITIALIZE PROJECT

The Project identified below has not been established in MIMS

Resource Needs:

Power Supply engineers, vendor services and equipment materials/parts. Station maintenance and travel maintenance may be involved with repairs.

Justification:

The last major inspection for CT-9 was in 1988. General Electric guidelines recommend a major inspection every 2,400 fired starts, and CT-9 is expected to attain this value in 2008-2009 timeframe. However, due to generating unit scheduling restrictions within the next five years as a result of increasing kwhr demand, and projected increase in the number of fired starts and service hours, this major inspection is scheduled in 2005 to minimize unit reliability risks and ensure continued reliable starting of the unit.

Preventive maintenance activities will be performed to maintain generating unit reliability. These activities include, greasing of mechanical equipment components, calibration of level/temperature/pressure instrumentation, servicing of electrical switchgear and motor control center components, servicing of the main/auxiliary transformers, replacing oil/air filters, replacing spark plugs, sandblasting/cleaning of the compressor and turbine rotors and stationary components, servicing of the lube oil/hydraulic oil system components, servicing of the fire protection system, servicing and/or replacement of combustion liners/transition pieces/cross fire tubes/fuel nozzles.

Corrective maintenance activities will be performed to restore equipment to satisfactory condition and improve generating unit efficiency. The activities include repairs to leaking valves, and corrosion control

Predictive maintenance activities completed prior to the major inspection will determine repair plans performed during the overhaul. Resulting repairs include, rotating equipment bearings replacement, motor cleaning and refurbishment, electrical cables replacement. Predictive maintenance activities performed during the overhaul identify repairs requiring immediate attention and support justification for future work. These activities include non-destructive testing of metallurgical components, generator stator/rotor non-destructive testing, generator rotor retaining rings non-destructive testing, main/auxiliary transformer non-destructive testing.

Issues, Impacts, Considerations:

The impact of not doing this major inspection negatively impacts EAF, combustion turbine reliability, and heat rate. Equipment repairs not addressed during this overhaul could lead to more extensive equipment damage, result in additional repairs to adjacent equipment, to contribute to increased repair costs and the inability to manage future O&M expenditures.

PROJECT IDENTIFICATION FORM - INITIALIZE PROJECT

The Project identified below has not been established in MIMS

Contributions:

Contributions in aid of construction (CIAC):

- In Kind

- In Cash

Cash Advance

Cost Sharing
(under HECO Policy UG Lines, October
2000)

Other type of payment (cash, non-cash) by outside party

PROJECT IDENTIFICATION FORM - INITIALIZE PROJECT

The Project identified below has not been established in MIMS

PUC Approved: ☐ Approval Required ☒ Not Required

☐ Approved, Date of Decision & Order: - - Docket Number:

☐ Awaiting PUC Approval, Application Filed - -

Authorization for: ☐ Engineering ☐ Materials ☐ Construction

Approval Option: Initialize project

Submitted by: Karen Pr. Mark Phone/Ext #: 1/30/04

Originator's Name: Karen Mark

Responsible Estimator: Karen Mark
(Pillar UserID)

Resp. Estimator Dept: Power Supply O&M
(Pillar Department Folder)

Project Manager: Larry Ornellas

Date: 01/30/2004

Required Approvals to Initialize a Project:

Ronald Fajardo 2/2/04
Responsible Manager Date

Thomas C. Emmert 2/2/04
Responsible Vice President Date

2:33PM

3 budget manager: *VIEW: 5-Yr Proj Cost by Ind & Cost Cat

1/30/2004

*Project #	*Ind #	Cost Categ...	Total 5 Year Cost	FY03	FY04	FY05	FY06	FY07
RKiyabu08_	NE	MATERIAL	\$186,500.00	\$0.00	\$0.00	\$186,500.00	\$0.00	\$0.00
RKiyabu08_	NE	O/S SVCS	\$728,000.00	\$0.00	\$0.00	\$728,000.00	\$0.00	\$0.00
RKiyabu08_	NE		\$912,500.00	\$0.00	\$0.00	\$912,500.00	\$0.00	\$0.00
RKiyabu08_			\$912,500.00	\$0.00	\$0.00	\$912,500.00	\$0.00	\$0.00
			\$912,500.00	\$0.00	\$0.00	\$912,500.00	\$0.00	\$0.00

Version: May03

Page 1

Upd03PNED-May03-RKiyabu.PLN

PRODUCTION CHANGE REQUEST (PCR) FORM

District: P-HECO

Temporary Project Number: RKIYABU08

Project Number: P0000937

Project Title: (28 characters) W9 Major Inspection

Short Project Title: (10 characters) W9 Major

Originator Employee's Number: 9700

Person Assigned To: Larry Omellas

Person Assigned to Employee Number: 21110

Responsibility Area: PIT

Activity: 272

Location: W09

Indicator: *W9* NE

Apply AFUDC (yes or no): *W9* No ☒

Existing Grandparent Project Number:

or

New Grandparent Project Description:

Pillar Temporary Projects
or 5th Segment Projects to link
to Grandparent Project above:

Plant Addition Date:

Plant Functional Category:

Project or Program: Project

For Admin use only:

Date updated MIMS Prod files: 2/4/04 - *W9*

Copy given to Pillar Admin: AP-I /

Date: 02/03/2004

PROJECT IDENTIFICATION FORM - INITIALIZE PROJECT

The Project identified below has not been established in EAMAC

Project Title: W10 Major Inspection

Plant Addition Date: -

Project Number: RIYABU20
(Temporary)

Commitment Date: -

Primary Corporate Goal: EAF

Strategic Plan Linkage: Reliability
(Primary)

Impact on Goal: Medium

Project Forecast (Thousand \$)

(Attach the "View - 5-Yr Proj Costs by Ind & Cost Cat" report obtained from the estimators' Pillar file.)

<u>Prior Years</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>Future Years</u>	<u>Total</u>
\$0	\$913	\$0	\$0	\$0	\$0	\$0	\$913

Assessment Factors

<u>Compliance</u>	<u>Competitive Advantage</u>	<u>Financial Impact</u>	<u>Reliability</u>	<u>Corporate Image</u>	<u>Total Score</u>
0	15	0	33	0	48

Purpose/Objectives:

Combustion Turbine (CT-10) major inspection will ensure continued reliable starting of the unit and prevent premature failure of its major components.

MANAGEMENT ACCOUNTING

FEB 5 2004

Scope Description:

The major inspection includes the following work:

- Inspection/repairs of the combustion section, hot gas section, generator, and auxiliary components.
- Preventive maintenance performed on generating unit mechanical, electrical, and controls equipment.
- Component inspection and non-destructive testing of equipment to determine repairs required for continued service life.
- Preventive and predictive maintenance performed on main and auxiliary transformers.
- Mechanical and electrical equipment repairs based on predictive maintenance technology and assessment.
- Exhaust stack inspection and repairs.
- Backlog work repairs on equipment requiring the combustion turbine to be shutdown and/or for safety reasons.

PROJECT IDENTIFICATION FORM - INITIALIZE PROJECT

The Project identified below has not been established in MIMS

Resource Needs:

Power supply engineers, vendor services and equipment materials/parts. Station maintenance and travel maintenance may be involved with repairs.

Justification:

The last major inspection for CT-10 was in 1990. General Electric guidelines recommend a major inspection every 2,400 fired starts, and CT-10 is expected to attain this ^{value} in 2008-2009 time frame. However, due to generating unit scheduling restrictions within the next five years as a result of increasing kwhr demand, and projected increase in the number of fired starts and service hours, this major inspection is scheduled in 2005 to minimize unit reliability risks and ensure continued reliable starting of the unit.

Preventive maintenance activities will be performed to maintain generating unit reliability. These activities include greasing of mechanical equipment components, calibration of level/temperature/pressure instrumentation, servicing of electrical switchgear and motor control center components, servicing of the main/auxiliary transformers, replacing oil/air filters, replacing spark plugs, sandblasting/cleaning of the compressor and turbine rotors and stationary components, servicing of the lube oil/hydraulic oil system components, servicing of the fire protection system, servicing and/or replacement of combustion liners/transition pieces/cross fire tubes/fuel nozzles.

Corrective maintenance activities will be performed to restore equipment to satisfactory condition and improve generating unit efficiency. These activities include repairs to leaking valves, corrosion control, structural and foundation repairs.

Predictive maintenance activities completed prior to the major inspection will determine repair plans performed during the overhaul. Resulting repairs include, rotating equipment bearings replacement, motor cleaning and refurbishment, electrical cables replacement. Predictive maintenance activities performed during the overhaul identify repairs requiring immediate attention and support justification for future work. These activities include turbine casing inspections for cracks and erosion, non-destructive testing of metallurgical components, generator stator/rotor non-destructive testing, generator rotor retaining rings non-destructive testing, main/auxiliary transformer non-destructive testing.

Issues, Impacts, Considerations:

The impact of not doing this major inspection negatively impacts EAF, combustion turbine reliability, and heat rate. Equipment repairs not addressed during this overhaul could lead to more extensive equipment damage, result in additional repairs to adjacent equipment, to contribute to increased repair costs and the inability to manage future O&M expenditures.

PROJECT IDENTIFICATION FORM - INITIALIZE PROJECT

The Project identified below has not been established in MIMS

Contributions:

Contributions in aid of construction (CIAC):

- In Kind

- In Cash

Cash Advance

Cost Sharing
(under HECO Policy UG Lines, October
2000)

Other type of payment (cash, non-cash) by outside party

PROJECT IDENTIFICATION FORM - INITIALIZE PROJECT

The Project identified below has not been established in MIMS

PUC Approved: ☐ Approval Required ☒ Not Required

☐ Approved, Date of Decision & Order: - - Docket Number:

☐ Awaiting PUC Approval, Application Filed - -

Authorization for: ☐ Engineering ☐ Materials ☐ Construction

Approval Option: Initialize project

Submitted by: Karen M. Mark Phone/Ext #: 4237

Originator's Name: Karen Mark

Responsible Estimator: Karen Mark
(Pillar UserID)

Resp. Estimator Dept: Power Supply O&M
(Pillar Department Folder)

Project Manager: Larry Omellas

Date: 01/30/2004

Required Approvals to Initialize a Project:

[Signature] 2/2/04
Responsible Manager Date

Thomas C. Simon 2/2/04
Responsible Vice President Date

2:33PM

* budget manager: *VIEW: 6-Yr Proj Cost by Ind & Cost Cnt

1/30/2004

*Project #	*Ind #	Cost Categ...	Total 5 Year Cost	FY03	FY04	FY05	FY06	FY07
RKiyabu20_	NE	MATERIAL	\$186,500.00	\$0.00	\$0.00	\$186,500.00	\$0.00	\$0.00
RKiyabu20_	NE	O/S SVCS	\$726,000.00	\$0.00	\$0.00	\$726,000.00	\$0.00	\$0.00
RKiyabu20_	NE		\$912,500.00	\$0.00	\$0.00	\$912,500.00	\$0.00	\$0.00
RKiyabu20_			\$912,500.00	\$0.00	\$0.00	\$912,500.00	\$0.00	\$0.00
			\$912,500.00	\$0.00	\$0.00	\$912,500.00	\$0.00	\$0.00

PRODUCTION CHANGE REQUEST (PCR) FORM

District: P-HECO
Temporary Project Number: RIYABU20
Project Number: P0000938
Project Title: (28 characters) W10 Major Inspection
Short Project Title: (10 characters) W10 Major

Originator Employee's Number: 9700
Person Assigned To: Larry Ornellas
Person Assigned to Employee Number: 21110

Responsibility Area: PIT
Activity: 272
Location: W10
Indicator: *my* NE

Apply AFUDC (yes or no): *my* No

Existing Grandparent Project Number:
or
New Grandparent Project Description:

Pillar Temporary Projects
or 5th Segment Projects to link
to Grandparent Project above:

Plant Addition Date: -
Plant Functional Category: *✓*
Project or Program: Project

For Admin use only:

Date updated MIMS Prod files: 2/4/04-08

Copy given to Pillar Admin: AP-I

Date: 02/03/2004

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Project Title: HECO 2005 TY RATE CASE

Plant Addition Date: -

Project Number: P0000526
(Permanent)

Commitment Date: -

Primary Corporate Goal: Act Rtn Equity

Strategic Plan Linkage: Price It Right
(Primary)

Impact on Goal: High

\$ 7500K

Project Forecast (Thousand \$)

(Attach the "View - 5-Yr Proj Costs by Ind & Cost Cat" report obtained from the estimators' Pillar file.)

<u>Prior Years</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>Future Years</u>	<u>Total</u>
\$0	\$579	\$1,230	\$32	\$0	\$0	\$0	\$1,841

Assessment Factors

<u>Compliance</u>	<u>Competitive Advantage</u>	<u>Financial Impact</u>	<u>Reliability</u>	<u>Corporate Image</u>	<u>Total Score</u>
0	-30	50	0	-24	-4

Purpose/Objectives:

HECO plans to file an application for rate restructuring and a general rate case in 2004 in accordance with our agreement in the DSM dockets. The rate case will be necessary to include in base rates DSM program costs, lost margins and shareholder incentives, and to recover the higher operating expenses, including higher power purchase and depreciation expenses, since the last HECO rate case proceeding. (HECO's last case was based on a 1995 test year.) As required by the settlement agreement, the application was to be filed by the end of 2003, using a 2004 test year; however, HECO and the Consumer Advocate agreed to delay the filing of the rate case by approximately 12 months, utilizing a 2005 test year.

MANAGEMENT ACCOUNTING

- FEB 6 2004

Scope Description:

Develop HECO's strategies for the proceeding, including planning and monitoring the case, research regulatory issues related to the proceeding, develop HECO's revenue requirements, prepare written direct and rebuttal testimonies, respond to information requests, evaluate other parties' positions, negotiate settlement agreement, prepare documents and oral presentations for hearings, prepare briefs, analyze, evaluate and implement decision(s) by the PUC.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Resource Needs:

VP Regulatory Affairs; Financial VP; HECO Controller; Regulatory Affairs Division staff; Energy Services Department staff; Planning & Engineering Department staff; Power Supply Services Department staff; Power Supply O&M Department staff; Construction & Maintenance Department staff; Customer Service Department staff; Corporate Communications Division staff; APPRISE staff; General Accounting Department staff; Compensation and Benefits Division staff; Compensation Division staff; Workforce Staffing & Development Department staff; Environmental Department staff; Information Services Department staff; Financial Services Department staff; System Operations Department staff; Management Accounting Department staff.

Justification:

See Purpose/Objectives.

Issues, Impacts, Considerations:

Continuation of DSM programs, and recovery of lost margins in between rate cases in the future, rates for large, high load factor, customers will be lower. Rates for residential customers and lower load factor large power customers will be higher.

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

Contributions:

Contributions in aid of construction (CIAC):

- In Kind

- In Cash

Cash Advance

Cost Sharing
(under HECO Policy UG Lines, October
2000)

Other type of payment (cash, non-cash) by outside party

PROJECT IDENTIFICATION FORM - AUTHORIZE PROJECT

The Project identified below has already been established in MIMS

PUC Approved: ☐ Approval Required ☒ Not Required

☐ Approved, Date of Decision & Order: - - Docket Number:

☐ Awaiting PUC Approval, Application Filed - -

Authorization for: ☐ Engineering ☐ Materials ☐ Construction

Approval Option: Authorize expenditures that are not capital

Submitted by: Patsy H. Nambu Phone/Ext #: 4702

Originator's Name: PATSY NANBU

Responsible Estimator: PATSY NANBU
(Pillar UserID)

Resp. Estimator Dept: Regulatory Affairs
(Pillar Department Folder)

Project Manager: PATSY NANBU

Date: 01/30/2004

Required Approvals to Authorize a Project:

N/A

Responsible Manager [Signature] Date 1/30/04
Responsible Vice President [Signature] Date
(not required for budgeted projects \$1 million and less)

VP, Government and Community Affairs Date
(not required if PUC approval is obtained)

[Signature] 1/6/04
Controller Date

If project exceeds \$5 million (\$1M unbudgeted), additional approvals are required. Please call Management Accounting at x7729

2:08PM

Version: Dec03

*VIEW: 5-Yr Proj Cost by Ind & Cost Cat

	FY04	FY05	FY06	FY07
	\$125.50	\$284.60	\$0.00	\$0.00
	\$8,385.88	\$338,409.09	\$5,987.19	\$0.00
	\$511.36	\$338,873.89	\$5,987.19	\$0.00
	1,000.00	\$2,000.00	\$0.00	\$0.00
	6,000.00	\$284,000.00	\$15,000.00	\$0.00
	7,000.00	\$286,000.00	\$15,000.00	\$0.00
	6,078.36	\$546,009.92	\$11,125.20	\$0.00
	6,078.36	\$546,009.92	\$11,125.20	\$0.00
	9,558.00	\$57,216.20	\$0.00	\$0.00
	9,558.00	\$57,216.20	\$0.00	\$0.00
	9,145.72	\$1,229,901.81	\$32,092.39	\$0.00
	9,145.72	\$1,229,901.81	\$32,092.39	\$0.00

Page 1

* budget m

Total 5 Year Cost	FY03
\$390.10	\$0.00
\$470,782.14	\$0.00
\$471,152.24	\$0.00
\$3,000.00	\$0.00
\$525,000.00	\$0.00
\$528,000.00	\$0.00
\$765,213.48	\$0.00
\$765,213.48	\$0.00
\$76,774.20	\$0.00
\$76,774.20	\$0.00
\$1,841,139.92	\$0.00
\$1,841,139.92	\$0.00

PROJECT IDENTIFICATION FORM - INITIALIZE PROJECT

The Project identified below has not been established in MIMS

Project Title: Kahe Pond 1A Cleaning

Plant Addition Date: 2002-12

Project Number: JYANAGID27

Commitment Date: 2001-08

(Temporary)

Primary Corporate Goal: O&M Prod

Strategic Plan Linkage: 1E - Reliability

Impact on Goal: Low

(Primary)

7 \$500K

Project Forecast (Thousand \$)

(Attach the "View - 5-Yr Proj Costs by Ind & Cost Cat" report obtained from the estimators' Pillar file.)

<u>Prior Years</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>Future Years</u>	<u>Total</u>
\$0	\$22	\$1,507	\$0	\$0	\$0	\$0	\$1,529

Assessment Factors

<u>Compliance</u>	<u>Competitive Advantage</u>	<u>Financial Impact</u>	<u>Reliability</u>	<u>Corporate Image</u>	<u>Total Score</u>
0	0	0	33	0	33

Purpose/Objectives:

This project will remove about 7000 cubic yards of silt from Kahe Pond 1A. This pond is an integral part of the Kahe waste water treatment system and it is presently about 2/3 full of sludge and silt. This pond needs to be

PROJECT IDENTIFICATION FORM - INITIALIZE PROJECT

The Project identified below has not been established in MIMS

Resource Needs:

Most of the work will be performed by outside contractors. This project will have a minimal impact to Production's

The Engineering Department will provide civil engineering project support. Production will provide most of the field supervision for this project.

Justification:

This pond cleaning project is necessary to keep the pond operational. With additional siltation, the pond may be too full to be a functional component of the Kahe waste water system. The Kahe waste water treatment system is a necessary part of the Kahe Power Plant.

If this work is not done, the pond will continue to fill with silt. Eventually, the pond will become so full that we cannot operate the Kahe waste water treatment system.

PROJECT IDENTIFICATION FORM - INITIALIZE PROJECT

The Project identified below has not been established in MIMS

PUC Approved: ☐ Approval Required ☒ Not Required

☐ Approved, Date of Decision & Order: - - Docket Number:

☐ Awaiting PUC Approval, Application Filed - -

Authorization for: ☐ Engineering ☐ Materials ☐ Construction

Approval Option: Initialize project

any Submitted by: _____ Phone/Ext #: 4245

Originator's Name: Larry Ornellas

Responsible Estimator: Jon Yanagida
(Pillar UserID)

Resp. Estimator Dept: Engineering
(Pillar Department Folder)

Project Manager: Jon Yanagida

(Note: Value does not appear in MIMS or Pillar)

Date: 02/26/2001

Required Approvals to Initialize a Project:

<i>Don</i> <i>David H. Ferguson</i>	<i>3/5/01</i>
Responsible Manager	Date
<i>Don</i> <i>Joan</i>	<i>3/6/01</i>
Responsible Vice President	Date

If project exceeds \$5 million (\$1M unbudgeted), additional approvals are required. Please call Management Accounting at x7729

PRODUCTION CHANGE REQUEST (PCR) FORM

Requestor: _____
Phone Number: _____
District: P-HECO

Temporary Project Number: JYANAGID27
Project Number: P00000458
Project Title: (28 characters) Kahe Pond 1A Cleaning
Short Project Title: (10 characters) K Pnd Cln

Originator Employee's Number: 21110
Person Assigned To: Jon Yanagida
Person Assigned to Employee Number: 20950

Responsibility Area: PBT
Activity: 212
Location: KWW
Indicator: ky NE

Apply AFUDC (yes or no): ky No

Existing Grandparent Project Number:
or
New Grandparent Project Description:
Pillar Temporary Projects
or 5th Segment Projects to link
to Grandparent Project above:

Plant Addition Date: 2002-12
Plant Functional Category: ky ~~Non-Steam~~ Production
Project or Program: Project

For Admin use only:
Date updated MIMS Prod files: 3/9/01 LY
Copy given to Pillar Admin: _____

AP-Inactive

Date: 02/26/2001

3/28/01
11:04AM
Page 1

*VIEW: 8-Yr Proj Cost

*Project #	*K-Prj #	*RA #	*Act #	*Loc #	*Ind #	*EE #	*Labor Class #	Line Item	Total 8-Yr Cost	FY01	FY02	FY03	FY04	FY05
JYanag427_						404		En Del OH	\$10,412.07	\$3,371.82	\$7,040.85	\$0.00	\$0.00	\$0.00
JYanag427_						405		Per Sup OH	\$1,478.00	\$0.00	\$1,478.00	\$0.00	\$0.00	\$0.00
JYanag427_						406		Admin Tr to Constr OH	\$2,821.82	\$834.86	\$2,186.94	\$0.00	\$0.00	\$0.00
JYanag427_						421		NPW OH	\$4,741.20	\$1,090.66	\$3,650.54	\$0.00	\$0.00	\$0.00
JYanag427_						422		Engl Benefits OH	-\$8,402.21	-\$883.20	-\$5,519.01	\$0.00	\$0.00	\$0.00
JYanag427_						423		Payroll Tax OH	\$2,901.14	\$633.13	\$2,268.01	\$0.00	\$0.00	\$0.00
JYanag427_	20950M27_	PBA	210	KWW	NE	150	__BUOCB	A. Engineering Administration - Critical	\$422.76	\$188.80	\$223.96	\$0.00	\$0.00	\$0.00
JYanag427_	20950M27_	PBA	211	KWW	NE	160	__BUOCB	Energy Delivery - Critical (Khe Pond Clean End)	\$422.76	\$188.80	\$223.96	\$0.00	\$0.00	\$0.00
JYanag427_	20950M27_	PBT	210	KWW	NE	150	__BUOCB	Project Critical Support	\$305.40	\$0.00	\$305.40	\$0.00	\$0.00	\$0.00
JYanag427_	20950M27_	PBT	210	KWW	NE	150	__FS-B	A. Engineering Administration - CEA Principal	\$2,818.98	\$628.56	\$2,190.40	\$0.00	\$0.00	\$0.00
JYanag427_	20950M27_	PBT	211	KWW	NE	150	B_STROFT	Drafting Tech	\$2,024.30	\$1,726.20	\$298.10	\$0.00	\$0.00	\$0.00
JYanag427_	20950M27_	PBT	211	KWW	NE	160	B_STRENG	D. Engineering Design - CSA Engineer	\$12,063.60	\$4,721.60	\$7,342.00	\$0.00	\$0.00	\$0.00
JYanag427_	20950M27_	PBT	211	KWW	NE	301		D. Engineering Design - Vehicle	\$88.00	\$40.00	\$48.00	\$0.00	\$0.00	\$0.00
JYanag427_	20950M27_	PBT	211	KWW	NS	150	B_STRENG	D. Engineering Obs - CSA Engineer	\$6,732.00	\$0.00	\$6,732.00	\$0.00	\$0.00	\$0.00
JYanag427_	20950M27_	PBT	212	KWW	NE	508		Outside Svcs-Eng. Consult Envr Field Sup	\$29,500.00	\$10,000.00	\$19,500.00	\$0.00	\$0.00	\$0.00
JYanag427_	20950M27_	PBT	212	KWW	NB	508		Outside Svcs-Eng. Consult Envr Field Sup	\$50,000.00	\$0.00	\$50,000.00	\$0.00	\$0.00	\$0.00
JYanag427_	20950M27_	PIP	212	KWW	NE	150	__PFENGR	F. Construction - Power Plant Engineer	\$9,303.00	\$0.00	\$9,303.00	\$0.00	\$0.00	\$0.00
JYanag427_	20950M27_	PIP	212	KWW	NE	505		F. Construction - Out Cont Haul	\$300,000.00	\$0.00	\$300,000.00	\$0.00	\$0.00	\$0.00
JYanag427_	20950M27_	PIP	212	KWW	NE	505		F. Construction - Tipping Fee	\$1,100,000.00	\$0.00	\$1,100,000.00	\$0.00	\$0.00	\$0.00
JYanag427_									\$1,529,633.80	\$22,361.85	\$1,507,273.95	\$0.00	\$0.00	\$0.00
JYanag427_									\$1,529,633.80	\$22,361.85	\$1,507,273.95	\$0.00	\$0.00	\$0.00

Iwasitan Electric Company CONFIDENTIAL
Ipdt1PMED-Jan01-JYanag427_
9:50am-Jan01

2/28/01
10:55AM
Page 1

*VIEW: 5-Yr Proj Labor Hour

*Project #	*M.Proj #	*RA #	*Act #	*Loc #	*Ind #	*EE #	*Labor Class #	*Line Item	Total 5 Year Labor Hour	FY01	FY02	FY03	FY04	FY05
JYenag027_	20550M27_	PBA	210	KWW	NE	150	___BUOCB	A. Engineering Administration - Capital	21	10	11	0	0	0
JYenag027_	20550M27_	PBA	211	KWW	NE	150	___BUOCB	Energy Delivery - Capital (Kaha Pond Clean End)	21	10	11	0	0	0
JYenag027_	20550M27_	PBT	210	KWW	NE	150	___BUOCB	Project Clerical Support	15	0	15	0	0	0
JYenag027_	20550M27_	PBT	211	KWW	NE	150	___FS-B	A. Engineering Administration - CSA Principal	70	16	54	0	0	0
JYenag027_	20550M27_	PBT	211	KWW	NE	150	___B_STROFT	Drafting Tech	70	60	10	0	0	0
JYenag027_	20550M27_	PBT	211	KWW	NE	150	___B_STRENG	D. Engineering Design - CSA Engineer	400	180	240	0	0	0
JYenag027_	20550M27_	PBT	211	KWW	NS	150	___B_STRENG	D. Engineering Obs - CSA Engineer	220	0	220	0	0	0
JYenag027_	20550M27_	PIP	212	KWW	NE	150	___PPENGR	F. Construction - Power Plant Engineer	300	0	300	0	0	0
JYenag027_									1,117	256	861	0	0	0
									1,117	256	861	0	0	0

CA-IR-546

Ref: Responses to CA-IR-211 and CA-IR-212 regarding PSC Taxes.

Please provide the following:

- a. Confirm, or explain to the contrary as applicable, that PSC taxes assessed and paid in any given calendar year are assessed upon the *prior year's* actual billed plus unbilled revenues.
- b. Clarify whether the "Taxable Base" revenues shown in Column A of the response to CA-IR-212 relate to the year/month shown or actually to the comparable months in the *prior year*.
- c. Clarify whether the "Current Year PSC Tax Expense" shown in Column B relate to the year/month shown or actually to the comparable months in the *prior year*.
- d. Provide the workpapers supporting the Public Service Company Taxes "At Present Rates" as shown on HECO-1701 (i.e., \$58,660).
- e. Provide the actual amount of 2005 PSC taxes that have been/will be assessed based upon actual 2004 revenues. Provide underlying calculations/workpapers tying/reconciling revenue base used in such assessment to revenues reported for financial statement purposes.
- f. Please provide the amount of PSC taxes included in the 2005 board-of-director approved budget, including underlying calculations/workpaper support, tying/reconciling the taxable base revenues into 2004 actual/estimated revenues.
- g. How are PSC taxes assessed allocated across, or spread to, each month of a given calendar year (i.e., one-twelfth of the annual assessment, based upon consumption in each month of the prior year, other).

HECO Response:

- a. PSC taxes assessed and paid in any given year are based on the prior year's actual billed revenues. It does not include unbilled revenues.
- b. The "Taxable Base" revenues shown in Column A of the response to CA-IR-212 relate to the current year.
- c. The "Current Year PSC Tax Expense" shown in Column B relate to the current year/month shown.
- d. See HECO-WP-2301, page 4 for workpaper supporting the Public Service Company Taxes

“At Present Rates”.

- e. The actual amount of 2005 PSC taxes based upon actual 2004 revenues is \$61,101,947. See page 3 of this response.
- f. The 2005 test year estimate of public service tax expense included in its application is \$58,660,000 at present rates. The estimated public service company tax estimate included in the 2005 budget is based on estimated electric sales revenues for 2005, which is based on, among other things, the energy cost adjustment revenue assuming a different fuel price from that used in preparing the test year estimates, and a production simulation produced at the time the budget was prepared based on the expected operations for 2005. The public service company tax estimate used in the budget for 2005 is not relevant to the test year estimate for the rate case.
- g. PSC taxes assessed are accrued each month based on the billed revenues for that month. PSC taxes due (assessed) and payable each month are based on one-twelfth of the annual assessment, which is based on the prior year's revenue. Depending on the difference in revenue between the prior and current year, there may be an over or under accrual for the period (difference between amount accrued and the amount paid).

HAWAIIAN ELECTRIC COMPANY, INC.
2005 PUBLIC SERVICE COMPANY TAX ESTIMATE
BASED UPON CALENDAR YEAR 2004 OPERATIONS
DECEMBER 30, 2004

ACCOUNT #	DESCRIPTION	DR / (CR) PER BOOKS	NOT subject to PSC/GET	PSC	
				GROSS INCOME	DEDUCTIONS
440-447	Electric sales (billed revenues)	(1,036,013,302.29)		(1,036,013,302.29)	
440-447	Electric sales (unbilled revenues)	(14,374,766.47)	(14,374,766.47)	-	
414	Gains from disposition of utility property	(234,137.31)	(234,137.31)	-	
450	Penalty charge - non-payment electric service	(1,036,287.06)		(1,036,287.06)	
451000	Miscellaneous service revenues	(485,627.99)		(485,627.99)	
451100	Expenses of miscellaneous service revenues	-			-
454000	Rent from electric property	(808,596.95)		(744,523.04)	
454100	Expenses from electric rental property	61,813.07			61,813.07
456000	Other electric revenues	(212,947.54)		(212,947.54)	
456100	Expenses of other electric revenues	4,000.93			4,000.93
	TOTAL Operating Revenues	(1,053,099,851.61)	(14,608,903.78)	(1,038,492,687.92)	65,814.00
501-555	Fuel oil and purchased power	631,243,844.30			631,243,844.30
Various	Other Operations	106,138,191.36			106,138,191.36
Various	Maintenance	47,846,607.60			47,846,607.60
403	Depreciation	69,466,695.40			69,466,695.40
408	Taxes, other than income taxes	97,973,967.32			97,973,967.32
409	Current Income Taxes - utility	16,833,921.85			16,833,921.85
410-411	Deferred Income Taxes - utility	10,335,162.92			10,335,162.92
412	Net ITC deferred	2,315,234.40			2,315,234.40
	TOTAL Operating Expenses	982,153,625.15	-	-	982,153,625.15
	NET Operating Income	(70,946,226.46)	(14,608,903.78)	(1,038,492,687.92)	982,219,439.15
415	Revenues from contract services	(3,090.00)	-		
416	Costs & expenses of contract services	39.00	39.00	-	
417100	Revenues from nonutility operations	(1,308,504.36)			
417200	Expenses from nonutility operations	1,320,173.29	1,320,173.29	-	
418	Non-oper rental income	(4,770.00)			
419000	Interest income - taxable	(243,359.61)		(243,359.61)	
41908001	Interest income - tax-exempt	(101,719.00)	(101,719.00)	-	
41925000	Settlement Discounts Taken	(209.94)	(209.94)	-	
419100	Dividend income	-		-	
419300	Interest income - Assoc Companies	(384,116.36)	(384,116.36)	-	
420010	AFUDC for equity funds	(5,225,585.14)	(5,225,585.14)	-	
420030	AFUDC for debt funds	(2,312,581.28)	(2,312,581.28)	-	
420100	AFUDC tax adjustment	(3,328,295.76)	(3,328,295.76)	-	
422	Gain on disposition - other property	(110,573.95)	(110,573.95)	-	
421000	Misc non-oper income	-	-	-	
421020-070	Undistributed subsidiary earnings	(31,930,506.34)	(31,930,506.34)	-	
	TOTAL Other Income	(43,633,099.45)	(42,073,375.48)	(243,359.61)	-
4082	Taxes, other than income taxes (non-utility)	5,708.75	5,708.75		-
409210	Federal current income taxes (non-utility)	(289,866.67)	(289,866.67)		-
410210	Federal deferred income taxes (non-utility)	(26,442.90)	(26,442.90)		-
409220	State current income taxes (non-utility)	(53,002.53)	(53,002.53)		-
410220,411220	State deferred income taxes (non-utility)	(4,529.27)	(4,529.27)		-
425	Misc amortization	55,085.50	55,085.50		-
426	Miscellaneous income deductions	1,010,280.16	1,010,280.16		-
	TOTAL Other Income and Deductions	697,233.04	697,233.04	-	-
427	Interest on long-term debt	24,954,003.50	24,954,003.50		
428	Amortization of debt discount and expense	1,464,230.40	1,464,230.40		
430	Interest on debt to associated companies	3,865,560.03	3,865,560.03		
431	Other interest expense	1,341,514.47	1,341,514.47		
	TOTAL Interest and Other Charges	31,625,308.40	31,625,308.40	-	-
	BOOK Net Income / PSC Net Income	(82,256,784.47)	(24,359,737.82)	(1,038,736,047.53)	982,219,439.15
144	Bad Debt Write-offs (NOTE A)			656,157.73	(56,516,608.38)
18658000	Interest Income from Rev Bonds (NOTE B)			(185,986.54)	(575,416.00)
			(1,038,451,862.88)	(1,038,265,876.34)	(57,092,024.38)
				PSC tax rate	5.885%
				PSC tax	(61,101,946.82)

NOTE A> Effective 6/22/98, PSC deduction allowed for bad debt write-offs, net of any recoveries.

NOTE B> Interest from Revenue bonds are included as a credit to interest expense.

CA-IR-547

Please provide an update of all correspondence to/from HECO or its outside counsel/consultants and the Internal Revenue Service regarding HECO's application to the IRS as discussed at page 37 of Mr. Shiraki's direct testimony.

HECO Response:

The Company has not been contacted by the Internal Revenue Service regarding the application for a change in accounting for construction costs. Consultants have informally indicated that the IRS is still dealing with the common tax issues involved in this accounting method change, which many utilities across the country have applied for.

CA-IR-548

Please provide an update of any research/studies undertaken by HECO or its outside counsel/consultants regarding other companies ability – or lack thereof – to avail themselves of

CA-IR-549

Please provide copies of workpapers, or cite previously provided workpapers supporting the

derivation of Public Utility Fees “At Present Rates” as reflected on HECO-1701.

HECO Response:

See response to CA-IR-546, page 3 of 4.